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SURGICAL SHOCK—AN EXPERIMENTAL STUDY OF ITS AETIOLOGY*

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At the end of the last war fairly general agreement had been reached that traumatic shock consisted of two separate entities *primary shock* developing early from a supposed neurogenic cause, and *secondary shock* developing later as a consequence of absorption of substances resembling histamine from the injured tissues. These affect the capillaries generally. With peace and more leisure, the animal experiments on which the theory of traumatic toxæmia was chiefly based were repeated and the results were found not to be corroborative. Presistent enquiry failed to reveal any toxic substance in the blood returning from injured tissues and careful experiments showed that circulatory failure developing in animals after crushing the legs could be largely accounted for by the amount of blood and plasma lost into the swollen limbs. At the outbreak of the present war, the still unsolved problem of shock, demanded further attention and explanation especially from the clinical point of view, considering the heavy toll this complication takes in war surgery.

Intense research work has been done in recent years to solve the vexed problem of shock and an immense amount of literature has accumulated but it can be frankly stated that the truth is not known.

The great exponents of the toxæmic theory are Cannon (1923) and more recently Moon (1938) of America. The neurogenic cause is however not of a recent recognition. Crile (1920) in the beginning of the present century had emphasised this aspect, but the flourish of the theory of traumatic toxæmia threw it into lime light—to be brought back again, only more recently by Laurence Oshaughnessy and Slome. Blalock in America, however, believes that the local loss of fluids from the injured tissues is the most significant factor in the genesis of shock and neither the toxæmic nor neurogenic factors are of any significance.

It will be apparent that the ætiology of shock still remains a mystery. In my experiments on animals I have studied the ætiology of shock and an attempt has been made to obtain evidence for or against each of the three present-day theories of the genesis of shock.

Experimental

The experiments were performed mostly on cats and dogs. I recorded the carotid blood pressure continuously on a kymograph drum. I observed the effects of various types of injuries in the production of shock as shown by a reduction of blood pressure. In some animals the limbs were crushed, in others an area of burn or scald was produced or the viscera traumatised. In some the effect of head injuries were observed. All the experiments were performed on completely anæsthetised animals under the effect of urethane and no physical suffering was undergone by the animal.

It will be too lengthy to describe all the experiments—only the more important ones will be mentioned here. The observations were repeated on several animals but here I shall describe only one experiment of each observation.

Experiment 1 (with an adult dog)—The femoral artery of one hind limb was exposed and divided completely. The proximal end tied, and into the distal end a cannula was tied, so that the limb could be transfused when desired. The femoral vein was clipped off. The same hind limb was then crushed at the mid-thigh level. After one hour, the crushed limb was transfused with normal saline and the clip from femoral vein removed. No effect was seen on the general B.P. This showed clearly that no toxic substance of the nature of histamine was produced in the crushed limb.

As a control 2 mgm. histamine was injected into the traumatised tissues and the limb transfused again. This time marked fall in B.P. was noticed.

On repetition similar results were obtained.

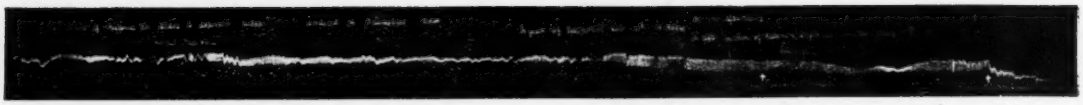
Experiment 2—Two animals, both cats, were used. The femoral nerve of one animal was exposed and sectioned completely. The hind legs of both the animals (a normal and a denervated limb) were crushed and it was noticed that while the animal with intact nerves showed a fall in B.P. to half the original level within one hour, the one with a denervated limb however was quite normal during the same period of time.

This experiment clearly showed that impulses passing along the nerves is causative of shock.

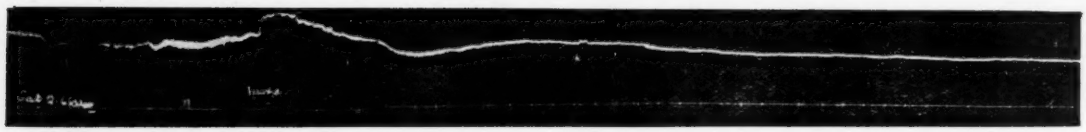
Experiment 3—Crushed hind limb in an animal under spinal anæsthesia again showed no fall in B.P.

Experiment 4 (in a cat with a crushed hind limb)—On manipulating the injured site a rise followed by a fall in B.P. tracing was noticed. This was observed repeatedly in the same animal and in various other experiments. After sectioning the main nerves of the limb (femoral, obturator and sciatic nerves) or administering spinal anæsthesia to the animal, manipulation of the traumatised limb no longer showed any variation in B.P. tracing. It will be apparent that it is the nervous impulse from the site of trauma which is responsible for the B.P. variations.

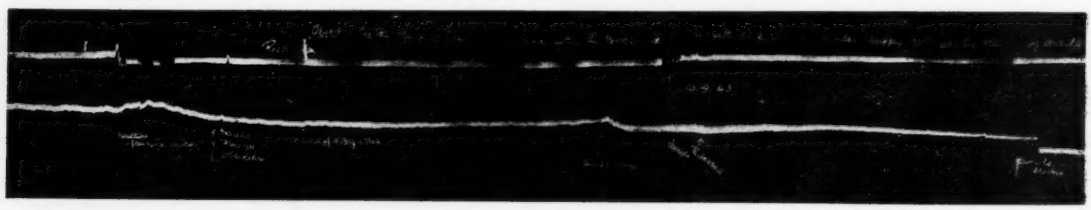
* This article forms a part of the subject matter of a thesis submitted for the M.S. degree of Lucknow University.



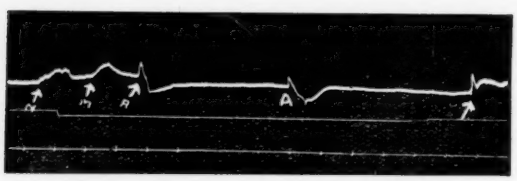
EXPERIMENT 1



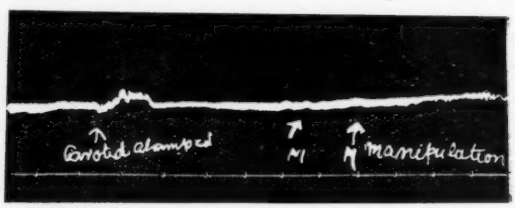
EXPERIMENT 2A—TRAUMA TO A LIMB WITH NERVES INTACT. SHOWS FALL IN B.P. AFTER AN INTERVAL OF TIME FOLLOWING TRAUMA



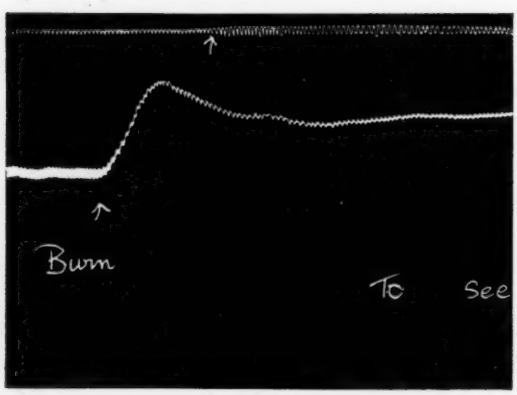
EXPERIMENT 2B—TRAUMA TO A DENERVATED LIMB. SHOWS HARDLY ANY FALL IN B.P. DURING THE SAME TIME INTERVAL AS IN EXPT. 2A.



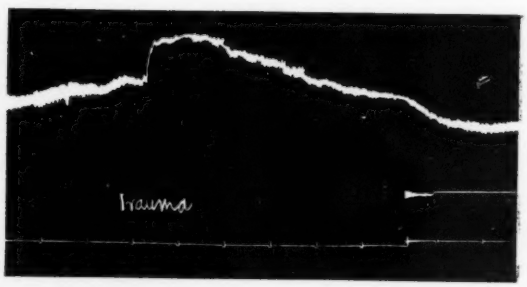
EXPERIMENT 4A—MANIPULATION IN A NORMAL LIMB PRODUCES VARIATION IN B.P.



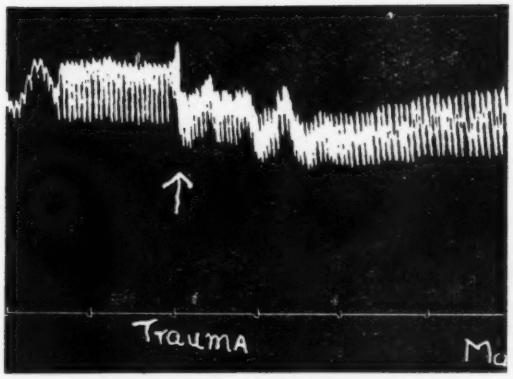
EXPERIMENT 4B—NO EFFECT ON B.P. IN A DENERVATED LIMB



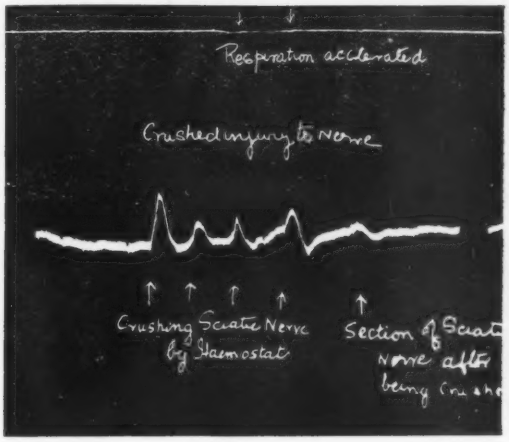
EXPERIMENT 6—"PRESSOR RESPONSE" IN THE CAT FOLLOWING ON A BURN



EXPERIMENT 7A—"PRESSOR RESPONSE" IN A CAT FOLLOWING TRAUMA (CRUSHED INJURY TO A LIMB)



EXPERIMENT 7B—"DEPRESSOR RESPONSE" OF THE B.P. IN DOG FOLLOWING A CRUSHED INJURY


Respiration accelerated
Crushed injury to Nerve
Crushing Sciatic Nerve by Haemostat
Section of Sciatic Nerve after being Crushed

EXPERIMENT 7C—ALTERATION IN B.P. IN A CAT FOLLOWING TRAUMA TO NERVES

EXPERIMENT 8—THE MUSCLE SHOCK FACTOR (M.S.F.)

Cannon in his monogram on shock describes a similar experiment, but he attributes the alteration in B.P. to a toxic substance which he argued was more rapidly massaged out of the traumatised limb into the general circulation by manipulation. From the experiment described above it will however be clear that the cause is of nervous origin and not due to a toxic agent.

Experiment 5—In a cat one hind limb was crushed. The animal went into a state of shock in an hour and was killed by injecting air intravenously. A hind-quarter amputation of the body was performed and the pelvis bisected into two equal parts. The traumatised and the normal limb were weighed but the slight increase in weight of the injured limb was too insignificant to explain the state of shock.

Experiment 6—In a cat one hind limb was wrapped in cotton wool and set on fire till it was thoroughly burnt. The blood pressure showed a rise to begin with, about twice the original level (pressor response) but it dropped within an hour to a very low level. The primary pressor response of blood pressure is typical of the cat, which has a very active sympathetic nervous system. Primary shock however as seen in more vagotonic animals as the dog is not seen in the cat.

Experiment 7—Trauma to a limb (crushed across the thigh) in a cat was followed by a pressor response (a rise in B.P.). This response was not found in another animal where the limb was denervated and then crushed. Further, it was noticed that trauma by crushing or stretching of a large nerve produces an exactly similar response on the B.P. It will, therefore, be clear that the immediate response on B.P. by trauma to a limb is *nervous* in origin. The cat shows a pressor response and does not show a fall in B.P. as in primary shock seen in vagotonic animals for reasons given above.

Experiment 8—Green (1943) found that an acetone dried extract of fresh muscle had a histamine-like response on the blood pressure. This he calls the muscle shock producing factor (M.S.F.). This was prepared by me and tried on the cat and similar results were obtained. It was, however, noticed that a watery muscle extract had no such response. The preparation of M.S.F. is a complex one and how far this shock-producing factor develops naturally in traumatised tissues is doubtful to say. No evidence however of a toxic agent was obtained in my experiments, as already stated in the earlier experiments.

In conclusion, I have come to believe from my experimental observations that more evidence in favour of neurogenic origin of shock is obtained than either the toxæmic origin or by fluid loss into a crushed limb.

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SULPHATHIAZOLE AND SULPHAGUANIDINE IN THE TREATMENT OF BACILLARY DYSENTERY

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Chemotherapy of bacillary dysentery has been extensively tried in the past few years. It marks a distinct improvement over the hitherto prevalent methods of treatment. Treatment with salines and diet though found useful in the milder types of the disease, is not very satisfactory in the treatment of the acute and more severe forms. In the treatment of the acute and fulminating forms, serum therapy has been the mainstay so far. But serum therapy has obvious drawbacks. For serum therapy to be effective a knowledge of the causal organism is essential and this cannot be arrived at unless a bacteriological examination of the stools is done. Besides, there are no antisera for all the various strains of dysenteric bacteriæ. The most potent antiserum is against the Flexner strain; that against Shiga is much less potent while there is no antiserum for the Sonne strain. Polyvalent serum consisting of antiserum against Shiga and Flexner is universally used. Chemotherapy obviates this difficulty, since it can be used in all forms of bacillary dysentery. Cytological diagnosis is all that is necessary for therapeutic purposes.

All the known sulpha drugs have been tried with varying results in the treatment of bacillary dysentery. All are agreed that sulphapyridine, sulphaguanidine and sulphathiazole are effective in the treatment of Flexner and Shiga infections. Some doubt is expressed as to their efficacy in the Sonne infections. But sulphaguanidine is heralded as the drug of choice in the treatment of bacillary dysenteries. Due to its low absorbability from the upper gut a high concentration of the drug is said to be brought to act on the colon—the site of infection in dysentery.

The present investigation has been undertaken to ascertain if (1) sulphaguanidine is superior to sulphathiazole as a therapeutic agent in bacillary dysentery, taking several points into consideration, (2) if so, is it due to its 'acclaimed' low absorbability from the gut, (3) if not, is absorption of the sulpha compound necessary for chemotherapeutic action.

The investigation—A wide-spread epidemic of bacillary dysentery in the months of July and August (1944) in this area provided an opportunity for the study of the effects of a few available sulpha derivatives. A gauge of the extent of the dysenteric infection was provided by the student population in this institution, where no less than about eighty students out of an aggregate of about 355 (22%) fell victims. Their living was scattered throughout the town. The epidemic was accompanied by a fairly virulent cholera infection as well, which fact in a sense prevented an exhaustive bacteriological observation as to the predominant dysenteric organism. The two infections also caused some confusion in diagnosis, as cholera vibrio were isolated in some admittedly dysentery cases (whose stools macroscopically and microscopically answered to the picture of bacillary dysentery) while some cases that were admitted with clinical picture of cholera (rice-water stool, vomiting, dehydration, etc.) later turned out to be cases of bacillary dysentery. The acute cases with symptoms of dehydration were treated for cholera. The rest were treated for bacillary dysentery.

Dosage of the sulpha drugs used—Three of the sulpha compounds were available for study, *i.e.*, a liberal amount of sulphathiazole, moderate amount of the plain sulphanilamide and a restricted amount of sulphaguanidine. The dosage of sulphathiazole was quite simple, *i.e.*, one gram (or two tablets) four or three times a day (depending on the severity of the condition), on the first day, followed by one gram three times a day for the second day. In most cases the effect was appreciable even after the first day's treatment. The number of stools had decreased to one or two; in several instances there was absolute constipation for a day or two succeeding. Blood and mucus had disappeared and in those cases with temperature, it was brought down to normal .There was a great relief of discomfort and the general condition had considerably improved. Though all the cases were on liquid diet on the first day, the restriction in diet was raised on the 2nd or 3rd day. When the patient felt like returning to the narmal solid diet, he was permitted to do so. With regards sulphanilamide, the dose in those cases selected for the sulphanilamide treatment was one gram four times a day for three days. The effect was much slower and the symptoms were controlled with passage of normal stools, after three days in most cases. The abdominal discomfort cleared off much more gradually. As for sulphaguanidine, in no cases did we resort to the 'heroic' dosage advocated by other investigators like Smith (1944), Brewer (1943), Clay (1943), Fairley and Boyd (1942) and others. The grammes of sulphaguanidine four times a day for two days were tried in all our series. The effect was better than with sulphanilamide but clinically inferior to the sulphathiazole group. Sometimes sulphaguanidine had to be continued for two more days at the rate of one gram three or four times a day to completely arrest all traces of blood and mucus in the stools and to reach the stage of general well-being by the patient.

Over fifty cases were treated with sulphathiazole and after a two day treatment, relapse was noticed in about seven cases (less than 14 per cent). No facts were available for the relapse or otherwise in the two dozen cases treated with either sulphanilamide or sulphaguanidine. The relapses in the case of sulphathiazole were all within a month of the treatment or discharge from the hospital. In none were toxic reactions noticed.

Bacteriology of the infection—Unfortunately, no elaborate study was possible in all the cases of dysentery treated in this series. In the few cases where the bacteriological observation was possible Flexner was the main infection. Previous experience in this institution for the past several years also revealed the fact that Flexner was the main infection in most cases of dysentery treated. The symptoms, macroscopic and cytological examination of the stools seemed to confirm this.

Sulphonamide absorption and their action in dysentery—Sulphaguanidine, discovered by Buttle in 1938

was put to use in the treatment of intestinal infections when its 'solubility yet poor absorption from the gastro-intestinal tract' was emphasised by Marshall (1940). As the readily absorbed and excreted sulphonamides were used for urinary tract disinfection, the reverse attribute of poor or non-absorbability was to be availed for alimentary disinfection.

With ordinary sulphanilamide (solubility 1 in 100 in water) which is absorbed very rapidly, concentration in the blood reaches a maximum in 3 to 4 hours followed by a gradual reduction in concentration reaching almost nil in about 24 hours. A blood concentration of 10 mgm. per 100 c.c. is found to be necessary in very severe infections and this concentration is obtained by administering 1 gram per 20 pounds or 6 to 7 grams for an average adult of 9-10 stones. This initial dose is expected to be followed by a maintenance dose equal roughly to the rate of excretion, *i.e.*, 2 gram every four hours. It is suggested on experimental evidence that such a procedure by rendering the blood and tissue fluids unfavourable as media for the metabolism and growth of susceptible bacteria, prevents the invasion of the tissues by these organisms, reduces the toxic substances and thus assists the anti-bacterial mechanism of the body, leading ultimately to recovery. The above dosage is therefore claimed to be the ideal for severe infections particularly of the septicæmic or pyæmic type. But in the treatment of bacillary dysentery such a dosage was not found necessary. Sulphathiazole has a solubility of 1 in 2,500 in water. In absorption and excretion it resembles sulphanilamide. It is said that sulphapyridine whose solubility is 1 in 3,000 has a slower absorption, less complete and more variable than that of sulphanilamide under the same conditions. As for sulphaguanidine, though it commenced its career in alimentary infections with an alleged 'non-absorbable premium' attached to it, subsequent events have tended to disprove the claim. Smith (1944) after a dose of 24 grams in 24 hours noticed a blood concentration of a surprisingly high figure of 10 to 14 mgm. per 100 c.c. He further observed that the blood concentration follows a pattern essentially similar to that of the daily dose of the drug. It has sometimes been observed, strange as it looks, that large doses are less completely absorbed than small doses and that in a diseased individual the rate of absorption is slower than in health. The findings of Smith (*loc. cit.*) were all in cases of moderate severity of dysentery and with large doses. Hence the absorption of the three aforesaid sulpha drugs in the treatment of dysentery is established. It may be mentioned that severe toxic manifestations after sulphaguanidine given in dysentery was the indication that the drug was absorbed in decent amounts.

Discussion—Smith (1944) in his article on this subject has the following opening sentence "The treatment of dysentery with sulphaguanidine has not gained the measure of approval accredited to the use of the other sulphonamides in many other infections". Pauley (1942) is of the view that sulphapyridine has advantages over the more widely used sulphaguanidine. *Lancet* (1942) in one of its annotations said 'It is clear, however, that sulphaguanidine is a readily absorbed drug and one capable of giving rise to toxic symptoms and that adequate urinary output must be obtained to prevent the drug crystallising out'. For this very reason, it should have a limited use in dysentery and allied conditions as these conditions tend to a smaller output of urine and that in a concentrated form. Unless energetic measures are taken, sulphaguanidine is a potentially dangerous drug. Sulphasuxidine is alleged to be free from this danger. It was thought, that administering large doses of sulphaguanidine which was presumed to be poorly absorbed, a high concentration in the bowel will be ensured and that the high concentration would exert a bactericidal action throughout the gut. If this is conceded, experiments *in vitro* should confirm it and real chemotherapy in action will be in evidence to a very limited extent like the action of the anthelmintics. But sulphaguanidine has been admitted to be like the other sulpha compounds fairly freely absorbed. To assume that bigger doses are less absorbed and therefore to indulge in heroic doses is to court risks. Sveral investigators had recorded severe toxic reactions after large doses of sulphaguanidine. Smith has clearly shown that blood concentration of the drug runs parallel to the dosage. His highest blood level with sulphaguanidine was 14 mgm. per 100 c.c. after a dose of 20 grams or a little more, a day, a concentration never reached by sulphanilamide or sulphathiazole. Astin Clay (1943) has shown that the concentration of the drug in fæces varied from a trace to as high as 10 gram per 100 c.c. Concentration in the fæces of sulphanilamide ranged from a trace to 0·84 gram per 100 c.c., the average being 0·3 to 0·4 gram per 100 c.c. Even cases that showed low concentration of the drug in fæces responded well to sulphaguanidine. In his series of cases, blood concentration of sulphanilamide was less than sulphaguanidine, his dosage being 30 grams of sulphaguanidine on the first day and 6 grams on four subsequent days while with sulphanilamide it was 6 grams a day for four days.

Children in all seem to stand the sulphonamides better, even massive doses not producing toxic reactions as readily as in adults. With more evidence born of experience one feels that the administration of very high dosage of sulphaguanidine is courting risk. The manufacturers of sulphaguanidine advocate a dose of 0·1 gram per kg. body weight as the first dose followed by 0·05 gram per kilo as maintenance dose every four hours. Treatment is expected to be continued at this level until the number of stools has decreased to about five per day when the interval may be eight hourly.

This is to be continued for from 3 to 5 days. This amounts to about 42 grams on the first day and in case the condition improved after 2 days treatment, about 24 grams for another 3 to 5 days. A seven day treatment would mean about 170 grams in all.

Our results with sulphathiazole of 4 grams a day for two days (very rarely three days) were satisfactory and one is constrained to the conclusion that it is a boon compared to the colossal sulphaguanidine dose. Clinically there were relapses in about 10 to 15 per cent of cases within a month. No rectal swabs were taken to confirm the result of cure. Subsequent dietary precautions were not strictly adhered to.

When the sulphathiazole effect was convincingly good, the plain sulphanilamide was tried. We adminis-

tered 4 grams in four doses for two days, rarely followed by 3 grams a day for two more days. The result was satisfactory though not so dramatic as with sulphathiazole. The symptoms showed signs of arrest after the third day gradually. No absolute constipation was noticed in any in this series as with sulphathiazole.

With regard to toxic action, in none in our series was any alarming toxic manifestations in evdience. A few patients experienced with sulphathiazole a feeling of lassitude and general weakness. Even with sulphaguanidine, the dosage being low unlike those of Smith, Clay and Brewer (*loc. cit.*) there was no evidence of toxic manifestation. The toxic effects observed by several workers like Smith and Marshall have already established the fact that sulphaguanidine is absorbed. Smith has definitely proved that blood concentration runs parallel to dose, the bigger the dose the more the absorption. If non-absorption is the main factor in the presumed use of sulphaguanidine in bacillary dysentery, a retention enema should do just as well, on the analogy of rectal medication with chiniofonum or yatren.

Hence the proved absorption of even sulphaguanidine not to speak of the others like sulphathiazole and sulphanilamide seems to suggest that absorption is necessary for chemotherapeutic action just as emetine circulating in the blood in high dilutions when injected, exerts its action on the amœba in the colon or antimony administered in cases of intestinal schistosomiasis.

Conclusions—(1) Sulphathiazole in doses of 4 grams and 3 grams respectively on two consecutive days was found to be very effective in controlling bacillary dysentery of predominant Flexner type.

(2) Sulphaguanidine in doses of two grams four times a day for two days—a dosage much less than the one prescribed by the manufacturers—was also effective in controlling the same infection.

(3) Sulphaguanidine in massive doses of 0·1 gram to 0·2 gram per kilo in 24 hours and possibly even in smaller doses when in use for bacillary dysentery is evidently absorbed as reported by others.

(4) Toxic reactions after massive doses of sulphaguanidine reported by others adds further weight to the other evidence in favour of its absorption.

(5) Absorption seems to be necessary for the action of any sulpha compound in bacillary dysentery.

Acknowledgment—Our thanks are due to the bacteriologist and other members of the K. G. Hospital for their cooperation and to Messrs. Ciba (India) Ltd., Bombay, for supplying Cibazol for trial in these cases.

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TEN YEAR PLANNING IN TUBERCULOSIS

With Special Reference to Mysore*

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Tuberculosis as a disease has been recognised for centuries, but its epidemiological investigation is a comparatively recent development dating from only the 19th century. In a series of necropsies conducted between 1840 and 1850, in the mortuary of St. George's Hospital, it has been found that as many as 26·1 per cent of all deaths is due to tuberculosis. In a more recent publication Naegeli (1900) has said that 71 per cent of his necropsies showed pathological changes due to tuberculosis. Until the discovery of tubercle bacillus very little was known about the cause of this disease, and much less about the spread of the disease. With its discovery in 1882 by Robert Koch it was at once concluded that all the problems of phthisogenesis would be solved very soon. But scientific investigation has shown that the control of tuberculosis is really a stupendous problem.

Unlike the severe infectious diseases as cholera, plague. small-pox which come in waves of epidemics, and carry away large numbers at one time this disease has become an endemic in several areas. It manifests itself in comparatively slow-moving cycles; at times it is widespread. Vital statistics available for Europe and U.S.A. since 1860 reveal that the incidence of the disease is on the decline. British Isles which had a specific mortality rate of 350 in 1860 has only 72 in 1935. In Denmark it was 325 in 1875 and 47 in 1935; in Austria, 375 in 1895, 480 in 1918 and 110 in 1935; in U.S.A., it was 200 in 1900 and 50 in 1935; in Philippines 275 in the 1925 and 295 in 1935.

These figures indicate that there is a definite decline in mortality rates in certain parts of Europe, and in U.S.A. and there is a rise in Philippines. Various reasons are given for this decline—(1) That a certain amount of immunity is developed, and the type of disease is of a chronic nature.

(2) That there is survival of the fittest.

(3) Better methods of diagnosis are available and so the cases are taken up for treatment in early stages.

(4) Through the Tuberculosis Associations with their anti-tuberculosis propaganda, and clinics, public both lay and medical, appreciate the seriousness of the disease, and the advantages of early diagnosis, and prevention of further spread.

(5) Lastly the methods of treatment have undergone radical changes. Surgical treatment as artificial pneumothorax, phrenic exairesis, cauterisation of adhesions, and different varieties of thoracoplasty have completely changed the prognosis in this disease.

We are not in possession of the vital statistics for India. In the first instance tuberculosis is not a notifiable disease. The registration of deaths, wherever operating, is done in the most perfunctory manner. The relations of the dead give some disease as the cause of the death and this is noted by the clerk or

* Lecture delivered before the Mysore Medical Association on 13-5-44.

patel of the village. The statistics that are available for Mysore State are certainly illuminating.

TABLE SHOWING SPECIFIC DEATH RATE FROM 1935-42

Districts excluding cities	1935	1936	1937	1941	1942
1. Bangalore ..	99	69	72	72	69
2. Chitaldrug ..	48	49	47	45	37
3. Hassan ..	49	40	49	41	39
4. Kadur ..	27	25	31	24	24
5. Mandya and Mysore ..	72	52	63	49	51
6. Shimoga ..	34	50	41	39	33
7. Tumkar ..	102	112	110	88	80
Cities					
Bangalore City	226	215	183	180	106
Mysore City ..	240	219	309	208	203
K. G. F. ..	105	68	50	55	61

There are some taluks notably in Tumkur District which give a very high death rate, and there are some taluks in Kadur where no deaths due to tuberculosis are registered.

However, faulty the sources of information with regard to cause of death might be, it is apparent from the above figures that tuberculosis is quite rampant in the cities of Bangalore and Mysore and some taluks.

A review of the statistics of the Medical Department of Mysore shows the following:

TABLE SHOWING NO. OF OUT-PATIENTS TREATED

Causes of Morbidity	1937	1938	1939	1940	1941
1. Tuberculosis of the lungs ..	2757	3729	5644	3478	2935
2. Other tuberculous diseases.	2254	2848	2217	2933	5107
Total ..	5011	6577	7861	6411	8042

The number of deaths due to tuberculosis in 1942 is given as 4140. According to Karl Pearson there are at least 10 persons if not 20 for every death suffering from manifest or latent lesion. Taking the lower figure there are at least 41,400 persons going about with this disease in the State. How many are actually getting the benefit of diagnosis and treatment?

The machinery available for diagnosis and treatment is far from satisfactory. Case finding is the major activity in the prosecution of a campaign to control tuberculosis. The success of a casefinding programme depends as much upon the attitude of the public towards tuberculosis as a communicable disease as upon the machines and technicians available to detect and treat the case. Edward Trudeau the first President of the National Tuberculosis Association of America stated in 1905 that 'Education of the people and through them of the State is the first and greatest need in the prevention of tuberculosis'. In a recent article on 'Casefinding in New York City' H. R. Edwards says that there is ample reason to indicate the need for improvement in expansion of educational methods to secure greater co-operation from the budget-making bodies, and from those known to be exposed as well as masses of the population who may be considered as potential cases.

If this is his opinion with regard to the anti-tuberculosis drve in New York city, the state of affairs amongst us leaves much to be desired. It is widespread education that is needed not only of the lay public but of the medical and nursing profession.

Tuberculosis clinics, mass surveys and hospitals and sanatoria are not sufficient to arouse interest of the public. The private practitioners and medical men in charge of dispensaries and hospitals do not appreciate their responsibility in detecting tuberculosis amongst the thousands who consult them. It is really unfortunate that inspite of tuberculosis being the most potent cause of death amongst us, it is thought of as the probable disease when all diagnosis have failed.

TABLE SHOWING NO. OF DEATHS AMONG THE INPATIENTS TREATED IN MYSORE STATE AS PER ANNUAL REPORT OF THE MYSORE STATE MEDICAL DEPARTMENT DURING 1935, 1940 & 1941.

	1935		*1940*		*1941*	
Name of Disease	Total Mysore State.	Total Cities.	Total Mysore State.	Total Cities.	Total Mysore State.	Total Cities.
1. Pneumonia ..	358	221	506	223	442	203
2. Tuberculosis of the lung & other tuberculous diseases ..	159	138	231	209	254	233
3. Diseases of the circulatory system ..	147	127	171	139	212	169
4. Anæmia ..	118	89	159	105	275	168
5. General diseases ..	—	—	—	—	164	224

Inspite of the fact that tuberculosis as cause of death stands I or II it is unfortunate that one thinks of this disease as plausible diagnosis only towards the end.

Many a case has been diagnosed as typhoid, malaria even without confirmation by bacteriological or serological findings. When the tests are negative, they are considered atypical. In the course of the illness if the patient develops cough, it is considered as supervening bronchitis or complication or broncho-pneumonia and pneumonia. Later when the lung signs perisist then is the wishful thinking that it may be unresolved pneumonia. Last of all the sputum is sent for examination by which time acid-fast bacilli will be detected.

Here I wish to impress upon you that a diagnosis of tuberculosis can be made before the bacilli are found. To wait for them is just like refusing to diagnose an abscess until it has burst and pus is pouring out.

The various methods of treatment will be effective when the diagnosis is made early. The statistics of the Mysore Sanatorium will give you an insight into this.

Of the total number of 306 patients treated during 1943, 8 per cent belonged to stage I, 4 per cent belonged to stage II and 88 per cent to stage III.

It is apparent from this table that amongst patients seeking admission to the Sanatorium, stage III cases predominate, in whom surgical interference of any kind is difficult or impossible as is seen from the following statistics:

Of the 306 cases treated 86 underwent pneumothorax, 33 phrenic interruption and 7 thoracoplasty.

Of the 86 cases of A.P., 15 cases were either arrested or quiescent. Of the 33 cases of phrenic interruption, 15 cases were either arrested or quiescent. Of the 7 cases of thoracoplasty which were purely unilateral, 5 were either arrested or quiescent. The remaining cases were discharged worse or died.

It is obvious from the fact given above that the fault lies with us more than with the patients for coming late for treatment. There is no reason why the medical men and medical students should not be given better instruction on the importance of tuberculosis and modern methods of diagnosis.

There is abundant evidence to show that the problem of tuberculosis is concentrated in the immediate vicinity of open infectious cases. The spread of the disease by direct implantation of the bacilli in larger and smaller quantities over prolonged periods, depending on the virulence of the bacilli and the age of the contact, may take place either immediately as in children or later during the adolescent or adult period.

Thus the problems that face us are the following:—

(1) Education of the public to familiarise them with the common symptoms of tuberculosis and to get their co-operation in the tuberculosis drive.

(2) Education of the medical profession—those in practice as well as the medical students—so that they appreciate their responsibility in detecting tuberculosis.

(3) Establishment of tuberculosis clinics in all cities and towns.

(4) An organisation to examine contacts of all open cases of tuberculosis.

(5) Establishment of sanatoria and hospitals for admitting all, or as many as possible tuberculosis patients.

(6) Colonies to isolate far-advanced cases thus preventing spread of infection.

(7) Preventoria for treatment of children who have been infected.

(8) Mass surveys not only in cities but also in taluks.

(9) Periodic examination of school and college students.

(10) Periodic examination of employees in industrial concerns.

With regard to—(1) Education of the public, in matters of tuberculosis—this can be done by pamphlets, popular lectures, radio talks, cinema shows and mass surveys.

(2) Medical education. The introduction of a course of lectures in tuberculosis in medical college curriculum is certainly a great improvement. Though the student gets a general idea about tuberculosis it is not I feel, sufficient to help him in his later practice. Post-graduate studies in the university is very essential. I wish this is introduced in our Universty. In addition to this, refresher courses spread over a week once or twice a year at the sanatoria and clinics will help the busy practitioner considerably, not only to brush up his knowledge but to do the follow-up work when the patients return to their homes.

(3) Tuberculosis clinics from the centre of tuberculosis activity in any organisation. This serves not only as a diagnostic centre but also as a treatment and clearing place. The success of this institute depends on the personnel and equipment. Correct statistics have to be maintained here. Patients will be sorted as to whether they are to be admitted into a sanatorium or are fit to undergo ambulatory treatment or should be sent to a colony. Every city and district head quarter town must have a clinic. There should be provision for keeping patients in these clinics for a day or two either as observation wards or for keeping them after A.P. and other minor operation.

(4) Organisation for examining contacts. As important as the clinic is this branch of work. Fourteen to fifteen per cent of the contacts have been diagnosed as having active pulmonary tuberculosis, a good proportion of this being in early stages, with a good prospect of complete cure. This is the most irksome part of the work. In the first instance many a father would not like to let his neighbours know that his son or daughter is ailing with tuberculosis. Secondly, many fear that after examination he or she may be diagnosed as tuberculous. It is considered to be a family or social stigma. I expect with education we may in course of time surmount this complex.

The examination of contacts to known cases is a basic procedure in the case-finding programme. The organisation of such a programme presents may difficulties and would add considerable expense. In the earlier stages, the case-load on the personnel of the clinic may be very high. Once we start this work we may be able to evolve a method by which only the suspected cases will be given more detailed examination. Some recent analysis of contact cases have indicated that about two-thirds of the cases to be found will be diagnosed at the first examination following the discovery of the original case and that within three years from that date the majority will be diagnosed. Thus the most important part of this programme is to locate the case whether it is latent or manifest so that further spread is controlled.

(5) Sanatoria. It is considered that for every death there should be one bed available in the State. This is the ideal aimed at in U.S.A. and almost achieved in Russia. There were 43 dispensaries and 18 institutions of sanatorium type with a total of 307 beds in Union of Soviet Socialist Republics in 1922. In the year 1941 the number of beds available in 203 tuberculosis institutions was 15,751. Besides these hospitals and sanatoria auxiliary institutions were opened with tuberculosis dispensaries such as night and day sanatoria. This brought up the total number of beds to 53,523 at the beginning of the present war; of this number 30,857 were allocated for children.

Compare this to what is available in India in general and Mysore in particular. All told there may be about 1,000 beds in the whole of India and 160 in Mysore. This is far from satisfactory.

Whatever the conditions prevailing outside there is no gainsaying that increase in beds for treating tuberculosis patients is imperative. The system adopted at present is to maintain a waiting list for such of the

cases as show a reasonable prospect of benefit by admission into a sanatorium. It is no exaggeration when I say that an average period of six months elapses before the intimation cards are sent to such patients and you can imagine what the condition of the patients will be.

What I would suggest as an immediate measure is to build cheap type of sanatoria in each of the district head quarter towns, to accommodate about 50 patients. These could form part of the tuberculosis clinic and the medical staff of the clinic with one or more assistants will be enough to run the institution.

(6) Colonies. These are as necessary as sanatoria or clinics. It is no use diagnosing cases as far advanced tuberculosis and so unfit for sanatorium or clinic treatment and let them stay in their homes spreading the infection. Unless isolation of these cases is taken up on hand side by side with the treatment, we will be following a course in a vicious circle, with no benefit to society at large.

(7) Preventoria. 14 per cent of the contacts show evidences of active lesion in the lungs. 15 per cent of the children in the age period 2 to 10 give a positive Mantoux's test. These children are likely to develop manifest lesions either immediately or during the adolescent period. Some arrangement to isolate these children to prevent further infection, and to give necessary treatment forms a part of tuberculosis campaign. As already mentioned Russia has provided beds for 30,000 children. One can easily realise the necessity for this step as the incidence of this disease in the next two decades will be considerably lessened. Treatment with sunray exposures and open-air schools and nutritious diet will effectively control tuberculosis.

(8) Mass surveys. The necessity for statistics and further planning is obvious to every one. Without mass surveys we cannot estimate the actual incidence of infection and disease. 1·8 per cent of healthy individuals have been found to be showing evidence of clinically significant pulmonary tuberculosis in mass surveys in New York.

(9) Periodic examination of school children and the employees in industrial concerns will also be helpful in the case finding programme.

(10) Last but not the least I wish to mention that tuberculosis should be made a notifiable disease. In the interest of the rest of the population it seems most reasonable that the registration of tuberculosis patients must be taken up immediately.

I think I have sufficiently stressed on the importance of a tuberculosis drive. The preamble might appear to be more lengthy than the plan.

In a way I have dealt with the various problems that face us. Under the conditions it is ncessary that there must be a plan to tackle this problem. Opening a tuberculosis clinic here and there is not going to solve the problem.

What the plan should be like I place before you for your consideration.

PLANNING

I Year—

(*a*) Training of medical men.
(*b*) Training of nurses and health visitors.
(*c*) Construction of a clinic at each district headquarter town.
(*d*) Branch associations affiliated to the Mysore Tuberculosis Association should be started.

II Year—

(*a*) Clinic starts functioning.
(*b*) Contact examination.
(*c*) Scheme for colonies.
(*d*) Expansion of existing sanatorium.
(*e*) Mass survey of Mysore city.

III Year—

(*a*) More clinics.
(*b*) Contact examination.
(*c*) Colonic function.
(*d*) Mass survey of Bangalore city.
(*e*) More sanatoria.

IV Year—

(*a*) Itinerary work as part of their case finding programme.
(*b*) Mass surveys in taluks.

V Year—

(*a*) Completion of clinic programme.
(*b*) Sanatorium for each town.
(*c*) Colonies whenever necessary.

VI-X Year—

Continuance of this case-finding programme with the same degree of intensity. Co-ordination of work in the different clinics, sanatoria, preventoria and colonies.

The training of the personnel both medical and nursing is of the prime importance. Without trained medical men and health visitors, we cannot go ahead with the work.

In the 1st year I would suggest training of 10 medical men. They ought to work in the sanatorium and the tuberculosis clinics for at least 9 months. During this period they will be instructed in different methods of diagnosis and treatment, interpretation of radiography and the laboratory tests.

Ten nurses should be trained in the sanatorium. Part of the training should be of a general nature to make them health visitors. Instruction in epidemiology and etiology of tuberculosis will help them to explain the methods of prevention of infection in homes.

When their training is in progress the Government should be approached to start a clinic in each of the district headquarters. I am quite confident, philanthropic persons will come forward with donations to start these clinics.

Tuberculosis associations must be started in every district headquarter towns.

Post-graduate diploma couse must be instituted immediately. (*i*) At the end of the first year there will be 10 medical men and 10 health visitors available for the clinics in each town.

In the course of 3 years the statistics available from contact examination will determine the nature of the

sanatorium and preventorium for each district. In addition to this sufficient spade work will have been done in sorting out the cases. A greater number of early cases will be admitted into the sanatorium who will be fit for radical surgical treatment.

By the end of four years if the scheme of tuberculosis clinics succeed we will have centres for diagnosis and treatment. Contact examination could be undertaken with success.

Post-graduate instruction and refresher courses must be made as attractive as possible so that medical men both in service and private practice will take advantage of this. If 10 medical men come forward every year, we will have at least 100 at the end of 10 years who will be an asset to the medical profession and to the State. The private practitioners can very well undertake the treatment of manifest cases and at the same time aid in the detection of cases in the families. This will naturally bring a number of early cases for treatment.

Statistics from clinics and contact examination will show where exactly we have to concentrate our work. Every attempt should be made to have beds attached to these clinics.

If trained medical men and health visitors are available, mass surveys could be undertaken.

The scheme should include a plan to have a sanatorium in each district. The number of beds will depend upon the needs of each district. The site for the sanatorium also will be determined by the statistics. Some towns may have accommodation for 20 beds only and some for 220 beds. Institutions for treating tuberculosis in different centres is very essential. It is a great hardship on patients to have to go to places distant from their homes. Financial difficulties come in the way of many people. Though this disase is found in all strata of society, essentially this is a poor man's disease. So every effort should be made to carry treatment to their homes and home towns.

The maintenance of these institutions is certainly a costly programme. In addition to the grants from the Government, the various industrial concerns must be made to pay a certain amount as their quota for treatment of their employees.

Small colonies must be started at the end of the first year by which time a sufficient number will have been detected who are unfit for sanatorium but at the same time a menace to the public and their family.

Provided it is a sustained programme and carried out efficiently I expect to have a sanatorium in each town, within ten years. The accommodation for these patients will also have increased to at least 1000.

More early cases will come up for treatment and the average stay for a patient will be reduced to about four months instead of fourteen. A more efficient and successful treatment could be meted out to these patients.

Within one decade the really far-advanced cases can be isolated into colonies and the danger of spread of infection will be controlled. So in the next decade there will be fewer cases to go to colonies, and the incidence of infection and morbidity will be considerably lessened.

Statistical Bulletin of America (February 43) sounds a warning note when it states a rise in mortality from all causes is apparently inevitable as the war continues. With the high cost of living, food scarcity, the resistance of people will be very much lowered. Just like Europe after the last great war, the incidence of tuberculosis will increase in India and unless a planned campaign against tuberculosis is organised immediately we may be faced with a serious problem affecting the national wealth and socio-economic balance.

Her Excellency the Viscountess Wavell presiding over the annual meeting of the Tuberculosis Association of India in New Delhi made a pointed reference to the training of workers. The paramount importance of training more and more workers to combat the scourge of tuberculosis is obvious. The medical care of tuberculous patients demands not only special initial training but constant opportunities for keeping abreast of the developments in this field of medical practice. I hope that those Universities in India which possess or are establishing medical facilities may like the Madras University institute a course for special diploma in tuberculosis. It far exceeds the number dying from the major epidemic diseases such as cholera, plague, small-pox which nevertheless receive much more public attention owing to their dramatic character, whereas tuberculosis is a slow insidious killer. In this connection I may mention that the question of introducing a special course for diploma in tuberculous diseases is under consideration in the University.

May I request you to give your whole hearted support and co-operation to this scheme. I dare say this will open the eyes of the public and the State.

(*Continued from page 266*)

Orissa, for examination of smears from a few cases and utilisation of his report, and to Dr. (Miss) A Puri, for help in laboratory work. I am also grateful to Dr. G. C. Pattanayak, the then Civil Assistant Surgeon, I/C, Angul Hospital, who so very kindly gave me facility and encouragement to work and observe on these ulcer cases in his hospital and for his continuous help and advice. I am also thankful to Mr. G. B. Das, Advocate, who helped me with 50 thousand units of anti-diphtheritic serum used in these cases.

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SO-CALLED TROPICAL ULCER IN ANGUL

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Introduction

Prior to 1942, the so-called tropical ulcer was unknown in this locality, at least it was never reported. Since May, 1942, many a case have been coming to the local hospital for treatment. In the years, 1942 and 1943, with the advent of the monsoon it assumed epidemic proportions. The epidemic was limited and mainly confined to the town. Two institutions, Civil Pioneer Camp and Police Training School, contributed most of the cases. Hospital wards became full with these cases and the majority had to be treated as out-patients. Dr. G. C. Pattanayak, the then M. O. I/C of the hospital, collected clinical data of 90 cases and has written an article. Finding me interested in studying the disease, he very kindly entrusted certain beds to me for my independent observation. Later on I had several cases in the local jail. This report embodies my observations on 36 cases.

On careful inquiry it transpired that the original source of infection was from some of the imported cases from Assam, amongst the personnel of military pioneers that came home on leave from that province. Later on I had in jail 2 cases, who were military deserters and had typical ulceration before they left Assam. The clinical picture of these two cases was in no way materially different from that of the local cases. The microscopical findings were also identical.

Aetiology

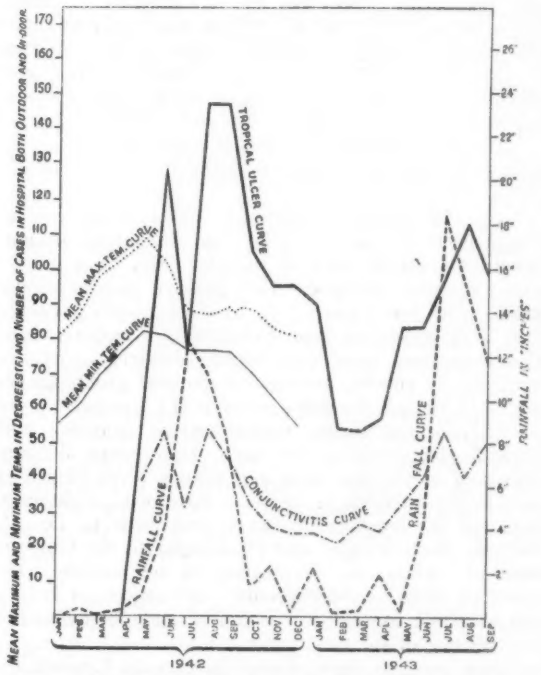
The incidence of the disease as regards age, sex, occupation, race, economic condition and social position, tallies in main with the findings of others. It was most common among male adult out-door manual workers. The poor, under-nourished, ill-fed and ill-clad people were affected more than the well-to-do. It was widely prevalent amongst the primitive tribal races and people in the lower strata of the society. Unhygienic conditions, insanitary surroundings and uncleanly habits seem to have influenced greater occurrence among such people.

We had very few cases in females and none in babies and children. But Roy (1928), Pasricha and Panja (1940) mentioned of cases in children and babies-in-arms. In the present series the age incidence was as follows:—

Age	No. of Cases.
Below 15 years	1
16 to 25 years	24
26 to 35 years	8
36 to 45 years	2
Above 45 years	1
Total ..	36 cases.

In most of the cases there was history of preceding trauma, trivial in nature but involving breach of continuity of skin surface such as abrasion or superficial cut; in some history of minor ulceration of the skin, *e.g.*, pustular scabies, boils etc. were present; in none the ulcer developed primarily on healthy skin. In this series, in seventy-six ulcers in 36 patients, 29 developed on abrasions or scratches, 12 on blebs due to tight-fitting boots, 6 on superficial cuts, 3 on boils, 25 on scabies (all 25 sores in 2 patients) and one on an ulcer due to burn. Duration of disease before admission into the hospital varied from one week to one month. In most of the cases it was 1 to 2 weeks.

Physical examination of the patients, history of previous illness and routine examination of stool and blood revealed malnutrition, malaria, hook-worm, anæmia and chronic amœbiasis in some of the cases. Except the first named, other diseases were not present in any active form. They were inconstant and not invariably present in all the cases. Some of the patients were in good health free from any ailment. Syphilis and yaws were absent, although the latter is endemic in this area. Apparently co-existent diseases do not seem to have much bearing on the tropical ulcer. Malnutrition may predispose to infection but no more than it does so to other diseases.


MEAN MAXIMUM AND MINIMUM TEMP. IN DEGREES (F) AND NUMBER OF CASES IN HOSPITAL BOTH OUTDOOR AND In-door
RAINFALL IN INCHES
TROPICAL ULCER CURVE
MEAN MAX. TEM. CURVE
MEAN MIN. TEM. CURVE
RAINFALL CURVE
CONJUNCTIVITIS CURVE
RAIN FALL CURVE
1942
1943

Graph Showing Meteorological Conditions and the Incidence of Tropical Ulcer and Conjunctivitis Cases

Seasonal distribution—The disease is rife during hot humid rainy season and apparently dies out with the onset of cold winter. The above graph shows the seasonal prevalence of the disease in relation to rainfall and atmospheric temperature. I could not get record of relative humidity and that of temperature for 1943. But there is no doubt that the relative humidity is high during the rainy season. In the graph, I have shown all the cases, both in-door and out-door, treated in the Angul Hospital between May, 1942 and September, 1943. The incidence of the disease, its rise

and fall, almost run parallel with the rainfall, relative humidity, and temperature. In absence of high atmospheric temperature, other two factors, seem to have little influence on its occurrence. In the month of February, 1944, the rainfall was unusually heavy (10″) and relative humidity high, but the number of tropical ulcer cases attending the hospital was "nil" and evidently due to cold winter.

During the rains the number of flies and other insects are more numerous. Some of them, quite likely, may be mechanical carriers of the disease. Roy (1928) observed that Naga sore and epidemic conjunctivitis coincided very closely with the prevalence of eye-fly (Siphunculina Funicola) in Assam. This fly is widely prevalent in Angul during hot humid months. It is a veritable nuisance during the season. Conjunctivitis, in my experience, assumes epidemic form at this period. Roy (1928) after his experimental study did not suspect this fly in the dissemination of Naga sore. Syddiq (1938) isolated diphtheroids (the germ frequently present in Naga sore) from serum-agar plates, on which this fly was allowed to crawl. The maximum incidence of tropical ulcer and conjunctivitis coincides with the greatest number and prevalence of this fly in this locality *i.e.* between May and September. Graph No. I also shows the seasonal incidence of tropical ulcer and conjunctivitis.

Causative organism—This is unknown. The prevailing opinion incriminates B. fusiformis and Vincent's spirochæta.

In the present series of cases microscopical examination of smears from the discharge, slough, scrapings from the base of the ulcer and from undermined margins revealed Gram positive diphtheria-like bacilli in all but 4 cases. B. fusiformis with pyogenic cocci were present in these 4 diphtheroid-negative cases. The organisms were rod-shaped, slender, sometimes very slightly curved, arranged in parallel groupings, in length ½ to 2/3 the diameter of R.B.C., showed polar staining, barred forms, metachromatic granules and marked pleomorphism in size. They were literally swarming in the discharge and slough. We identified them as diphtheroids or avirulent form of C. diphtheria. Some of the unstained smears were sent to Dr. B. Patnaik, Bacteriologist and Pathologist to the Government of Orissa, for verification of our results. He identified them as diphtheroids. We regret no facility was available for culture, isolation, and determination of virulence of the organisms.

We used to stain smears in Gram's Leishman's, Neisser's, Lœffler's, Ziehl-Neelsen's and Boye's stains (Simeons, 1942). Fusiform bacilli, Vincent's spirochæta, common pyogenic cocci were other associated organisms found in some cases. Next to diphtheroids, in order of frequency, B. fusiformis either alone or in association with spirochæta was present. But they were not found in most of the cases nor were they regular and constant.

In some of the cases daily examination of smear was done. These diphtheroids persisted till the healing process was well advanced and the ulcer became covered with healthy granulations. Other associated organisms including fusiform bacilli, when present, disappeared early and invariably before the disappearance of the diphtheroids.

Smears prepared with a little tissue fluid drawn by means of a hypodermic syringe from the margin of ulcer and puncturing intact skin, on examination did not reveal L.D. bodies. Amœba, or any other organism were never found after careful search of several smears from different cases. Smears prepared from swabs taken from the throat of patients, were negative for diphtheroids. Smears made from swabs taken from the eyes of ulcer patients, not suffering from conjunctivitis, showed similar diphtheroids in 3 out of 16 cases examined. Smears from 26 out-patients suffering from conjunctivitis were examined and 21 cases showed organisms morphologically identical with the diphtheroids found in ulcers. These 26 cases had no sore on their bodies. These diphtheroids were not Hoffman's bacilli.

Wassermann's reaction was done in 4 cases with negative results.

Several experiments were done on the patients and on pigeons. Cases showing either Gram-positive diphtheroids alone or with the minimal number of common pyogenic cocci in several smears, were selected for experiment. The results of these are summarised below:—

1. Ulcer material taken fresh and diluted with sterile normal saline, was injected intradermally by means of a tuberculin syringe on healthy skin, produced local inflammation in 2 to 3 days and typical ulceration in 7 to 8 days. Smears taken from this ulcer showed diphtheroids.

2. The same material after heating ½ hour in boiling water bath and injected intradermally caused slight local inflammation which subsided without formation of an ulcer.

3. Pus from the sore taken with a swab and applied on intact skin and bandaged for 24 hrs. did not produce inflammation or ulceration.

4. The same thing done on freshly scratched skin produced typical ulcer in 6 to 7 days. Smears from this ulcer showed typical diphtheroids.

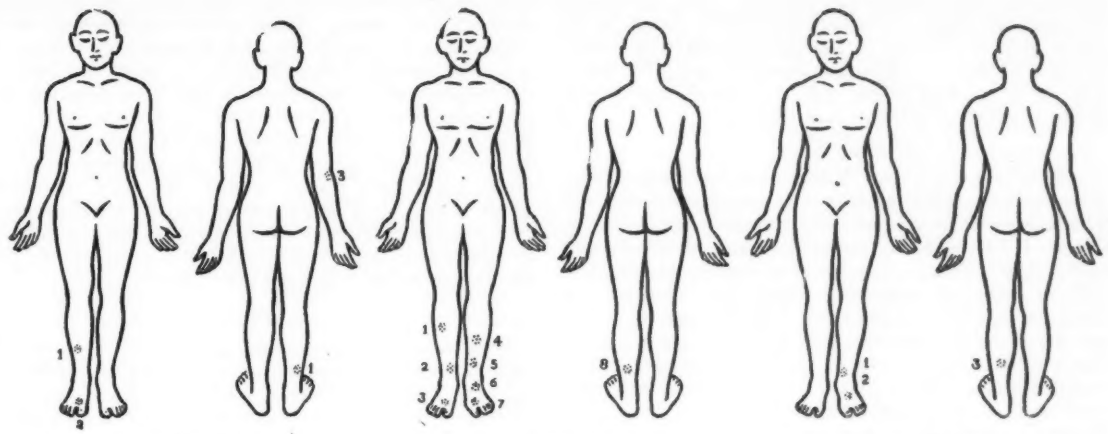
5. Fresh ulcer material diluted in normal saline was injected into the pectoral muscles of pigeons (*Columba Livia*). The birds became ill after 4 hours, got fever, did not take food and showed local inflammation and died 2 to 5 days after. Smears taken from the site of injection soon after death showed characteristic diphtheroids.

6. The same material heated for 15 minutes and injected likewise into another bird produced no appreciable change.

7. Discharge from the eye of a diphtheroid-positive conjunctivitis case taken and diluted in normal saline was injected intradermally in to the same patient, produced typical ulcer in 6 to 7 days, which was positive for diphtheriods.

8. The same discharge injected likewise after heating for 15 minutes caused slight local inflammation which subsided in 2 days without ulceration.

Incubation period—It is not definitely known. From the history given by the patients of the date of injury and the date of first appearance of ulcer and



CASE No. 3 CASE No. 6 CASE No. 19

SPOT-MAPS SHOWING CHARACTERISTIC DISTRIBUTION

experimental production of ulcer in our cases, it seems, incubation period is 5 to 10 days.

Immunity—It seems the disease does not confer any immunity against subsequent attacks. Some convalescent patients developed the disease on fresh sites. Some discharged (cured) patients were readmitted for fresh ulceration in other parts after varying periods. All these cases were positive for diphtheroids and the ulcer ran its usual course.

Distribution—Most of the ulcers were confined to front of the leg and dorsum of the foot. In a few cases it was on the elbow, forearm and thigh, but never on the face or sole. The sores may be multiple or single. Most of the cases had single ulcer, though 2 to 3 sores were fairly common, multiple lesions were present only occasionally. The spot maps of three cases with multiple sores show its characteristic distribution. It brings out four facts:—

(1) The face though an exposed part, was invariably free from sores. This negatives transmission of the infection by any winged vector. Possibility of winged insects being the mechanical carriers of the contagion is plausible; nature of distribution rather lends support to this assumption. The face being the part very frequently washed and least exposed to injury, any contagion carried there is likely to be washed away before it engrafts itself in any abraded spot.

(2) The nature of distribution of sores rules out the possibility of secondary infection through blood or lymph channels.

(3) It supports the view expressed by Knowles (1930) that the primary lesion is always of the nature of an abrasion, the ulcus tropicum infection being superimposed on this.

(4) It throws doubt on the stress given by Roy (1928) on soil contamination as the main source of infection, as the soles always in contact with soil were never involved.

The general character—The ulcers were most characteristic, so much so that we were able to diagnose it at a glance, microscopical findings seldom upset our diagnosis. The sore was round, oval, or serpiginous in shape, with deep punched out slightly undermined edges; dischage serosanious and putrid; cavity filled up with greyish yellow foul smelling slough which was but loosely adherent; on removal of the slough, the base was found covered with unhealthy granulation, which bled easily. It was very tender, some hyperæsthetic spots were present, may be due to exposure of nerve fibrils. The base was infiltrated. Discoloration and infiltration of the surrounding tissues were present. Deeper structures such as muscles were rarely involved and never the bones, a complication which was present in some of the cases reported by Kerby (1932) from Africa and Bharucha (1943) in India. Regional lymph glands were not involved. The size of the sore varied from ½" to 3". Pain was very severe and some patients complained of pins and needles in and around the ulcers.

Constitutional symptom—It was conspicuous by its absence. None of our patients had fever. But Panja and Ghose (1944) observed fever in some of their cases. Paresis or paralysis of muscles or sensory disturbances were not present in any case either during the course of the disease or afterwards in follow-up cases.

TREATMENT

This was most baffling. Anti-diphtheritic serum, used in three cases showing only diphtheroids, both locally and parenterally, around the ulcer had no effect. Maximum dose of serum used in any single case was 15000 units, given in daily dose of 5000 units, for three consecutive days. Locally gauze soaked in serum was used in dressing the sores. N.A.B. in glycerine or water claimed by some to be almost specific did not appreciably influence the stay in hospital. So also was the effect of sulphonamide group of drugs used locally. Exsiccated magnesium sulphate, copper sulphate, potassium permanganate and mercury lotions were no more efficacious than simple dressing in normal saline, after loosening and removing the slough with H_2O_2 in active stage and acriflavin in cod-liver oil in healing stage. Daily dressing with complete rest to the limb seemed

to influence favourably the healing. The difference between the results of various treatments in our hands was negligible and within the limit of statistical error. As such it does not warrant comparison and discussion. The period of stay in the hospital varied from 2 to 6 weeks whatever treatment was given.

Discussion

In our experience tropical ulcer presents a very characteristic clinical picture. It resembles very little the shallow Veldt sore of dry desert area described by Craig (1919), Manson-Bahr (1941), and Hamburger (1939, 1940); but it bore similarity to some extent to chronic type of cutaneous diphtheria reported by Cameron and Muir (1942). It may be a clinical entity, which can be divided into different ætiological groups. But the ætiology is still shrouded in mystery. The bacterial flora present in the ulcer has not been conclusively investigated. Apparently B. fusiformis, Vincent's spirochæta, diphtheroid and nontoxigenic C. diphtheria are suspects. In any case one or more of these organisms are present, frequently in association with common pyogenic cocci. Doshi (1930), Bopaiya and Rao (1942). Panja and Ghose (1944) found B. fusiformis and Vincent's spirochæta associated with the ulcer. Pasricha and Panja (1940), Bharucha (1943), and other workers isolated diphtheroids. Roy (1928) found intracellular diplococci in most of the cases. Napier (1943) found diphtheroids in some cases. He did not succeed in producing ulcer in experimental inoculation of these diphtheroids. But he mentioned two cases investigated in the School of Tropical Medicine, Calcutta, in which diphtheroids isolated from the sores, caused typical ulcer on experimental inoculation. Pasricha and Panja (1940) isolated non-toxigenic C. diphtheria from 5 cases of "Garigha" (Naga sore) which produced typical ulcers when inoculated experimentally into man, from which the organism was recovered. In our cases, experimental inoculation of ulcer material produced typical sores in man, whereas the same material inoculated after heating had no effect. These experimental sores were positive for diphtheroids.

Napier (1943) mentions cases of Naga sore in which peripheral neuritis was present. On careful investigation and subsequent follow-up we could not find this sign in any of our cases. Moreover treatment with anti-diphtheritic serum, in our cases, apparently had no effect. This throws doubt on the possibility of true Klebs-Lœffler bacillus infection in our cases, even in absence of laboratory culture and virulence test. Possibility of infection with nontoxigenic variant of C. diphtheria is plausible as our identification of the diphtheroids was based only on morphological characters.

The bacteriology of the diphtheroids has not been thoroughly studied. Several workers succeded in isolating it from Naga sore. Some succeeded in producing sores on its experimental inoculation. None have succeeded in producing ulcer on inoculation of fusiform bacillus. Diphtheroid-negative patients in our series might be cases in which the number of this organism was very scanty.

Finding of morphologically identical diphtheroids from the conjunctival secretion of tropical ulcer cases and conjunctivitis cases not suffering from this sore, is itself interesting. Experimental production of a typical sore on inoculation of discharge from the eye of a case of conjunctivitis, though in a single instance, is very significant. Occurrence of these two diseases at a particular season and the coincidence of their rise and fall, is another point worthy of extensive investigation. Xerosis bacillus cannot be ruled out, but none of these cases had Bitot's spots, xerosis or night blindness (hemeralopia). Connection of eye-fly (Siphunculina Funicola) with these two diseases, if there is any, is worth finding out. Roy's (1928) experiment on this point may not be taken as conclusive.

Summary

Occurrence of ulcers in epidemic form in Angul, closely simulating tropical ulcer is reported. Presumably the original source of the disease was from some of the imported cases from Assam. The greatest number of cases was among adult male out-door workers of the poorer class. The infection engrafted itself through some preceding abrasion or ulceration. Its incidence was highest during hot humid rainy season. Its occurrence closely coincided with that of conjunctivitis and the prevalence of eye-flies in the locality. Rainfall and high relative humidity in absence of high atmospheric temperature seems to have little influence on its incidence. Gram-positive diphtheroids were found in 32 out of 36 cases reported. Examination of conjunctival secretion of these ulcer patients not suffering from conjunctivitis showed morphologically identical diphtheroids in 3 out of 16 cases examined. Smears from the eyes of 21 out of 26 patients suffering from conjunctivitis but not from any ulcer showed organisms, morphologically identical with the diphtheroids found in tropical ulcer cases.

Experimental inoculation of ulcer material in human beings produced typical sores whereas it had no effect when inoculated after heating. Diphtheroids were found in these experimental ulcers. Fresh ulcer material apparently seemed highly toxic to pigeons and caused their death in 2 to 5 days on intramuscular injection whereas control birds injected likewise with the same material heated for 15 minutes did not show any appreciable change. Intradermal inoculation of discharge from the eyes of diphtheroid-positive conjunctivitis cases produced sores closely resembling tropical ulcer. The same discharge injected similarly after heating had no effect. These sores were positive for diphtheroids.

Nature of distribution of the sores on the body negatives the idea of transmission of the disease through any winged vector.

The assertion of soil contamination as a factor in the dissemination of the disease is doubted.

Treatment with anti-diphtheritic serum was unsuccessful. In no case peripheral neuritis was observed.

Acknowledgment

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(*Continued at foot of col. 2, page 262*)

SPECIAL ARTICLE

MEDICAL EDUCATION*

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MEDICAL EDUCATION

Ladies & Gentlemen, At a gathering like this chiefly composed of the medical students I am sure you would not like me to talk too much on the medical politics of the country but would expect that I should express my views on the problems affecting the students. I will therefore confine myself to some aspects of medical education. It was felt for many years by the profession, the public and some of the high Government officials that there should be one uniform standard of medical education in India and that the medical schools should be brought to the level of the university standard. A meeting of representatives both of the Central and Provincial Governments, those of the Universities, some members of the profession and the heads of the medical institutions was held in 1938. They decided that the standard of education in the country should be raised to the University standards, if possible immediately, otherwise gradually. The Medical Council of India supported this decision and laid down the minimum standard of education for the guidance of the authorities. Some provinces like Madras, implemented this recommendation immediately; others gradually. There are some who while they profess to agree with the decision of the representative meeting, take no action in the matter.

COLLEGE OF PHYSICIANS & SURGEONS, BOMBAY

Bombay Province is one of them. The College of Physicians and Surgeons has been trying to gradually raise the standard of L.C.P.S. ever since 1928. It made another attempt after the representative meeting. Government promised to stop the admission of students to the medical schools for L.C.P.S. course from a certain fixed date but they never kept it and changed these dates from time to time. A deputation waited on the adviser to the Government and pressed its views on the necessity to raise the schools to the level of colleges. It became clear at this interview that the Government was not in favour of the change. The College which was only an examining body and which had no control and no executive powers over the administration of schools, had no other alternative but to continue with their policy of gradually bringing the course to the standard laid down by the Medical Council and increased the course feasible with the facilities available at the schools. The Bombay Government showed itself in its true colours. Flouting the opinions of the Medical Council of India, the College of Physicians and Surgeons, Bombay, took a most reactionary and retrograde step of instituting a second inferior qualification with a special board of management for it. The resentment against this action of the Government was so strong that it did not dare to bring it before the Bombay Medical Council for its recognition but exercised its special powers and ordered the Council to put the L.M.P. on the Schedule of recognised qualifications. The Bombay Medical Council is still keeping the execution of this order pending. It has very recently sent a resolution to the Medical Council of India recommending that admissions to the schools for qualifications lower than that laid down by that body should cease from June 1946. Bombay Government could not have succeeded in their design but for a section of our Licentiate friends which on the promises of the Government, supported the Government in perpetuating its policy. This was very unfortunate. Bengal is another major province whose Government remains adamant in continuing the inferior qualification. The arguments put forward by these Governments in favour of their policy have been that:—

(*a*) The poor students could not afford to undertake medical study if it was made more costly by raising the standard.

(*b*) The Government would have to spend more after the medical relief if they had to abolish the subordinate medical service which they will have to do if the licentiates class ceased to exist.

(*c*) The standard of remuneration for medical services rendered to the public by the medical practitioners with better education will be naturally raised and people might find it hard to meet the cost.

(*d*) That if there be one class—a graduate class—that class will not go to village for practice and the rural areas will suffer from lack of medical relief.

Ladies and gentlemen, how flimsy, untenable and ridiculous are these grounds on which some of the high mighty officials and advisers of the Government continue their policy. These arguments have been often refuted by the profession, the public and some of the members of the Government official committees. When smaller and financially weak provinces found no difficulty in converting their medical schools into colleges even during the war, I wondered why the Government of Bombay could not do so. We hope the present Surgeon General with the Government of Bombay, signs of whose sympathy for the aspirations of the profession have been evident, would try his best to convert the two medical schools in the province into colleges very soon. It is very necessary, ladies and gentlemen, that we are united and look into actively and with vigilence, how our interests are being safeguarded by the Government and by those chosen to be our leader. The College of Physicians and Surgeons, Bombay, much maligned by some members of the profession, has done a great deal to improve the lot of the L.C.P.S. class by making a number of changes in the provisions of various examinations. An L.C.P.S. can go up for M.C.P.S. with less difficulties now than it used to be some time back. Those who had some standing and opportunities to gain better clinical knowledge were helped to go up for higher examinations by special concessions. A number of specialists qualifications have been instituted which have become quite popular and they have improved their status, considerations are made for the suitable candidates and provisions are relaxed for them. M.C.P.S. is recognised by the Medical Council of India. It has been now easier for them to go up for the

* Being an address to the 33rd Social Gathering, B. G. Medical School, Ahmedabad on 18-2-45.

university degree. All the difficulties of the L.C.P.S. will disapear as soon as the Government raised the medical schools into colleges. The College of Physicians and Surgeons will then cease to exist. It may continue as a post-graduate institution.

Changes Needed in the Study of Medicine

This brings me to the question of what are the changes necessary in the system of medical education. I will touch a few of them only. The existing curriculum is very heavy. The grouping of subjects the spacing of examinations, the conduct of examinations and results thereof have been very unsatisfactory. Not only that but the system of teaching needs revisions.

Selection of Proper Students for Medicine

A change will have to be made in the method of selection of the students for admission to the study of medicine. At a meeting of the medical students held in Bombay to protest against the high percentage of failures in medical examinations, one of the many reasons pointed out by me was the admission to medicine of students who had no aptitude for the subject. The parents give no thought and make no effort to find out the aptitude of their children for a particular vocation, during the course of their school education, nor is the guidance given by the teachers to the children to think and find it out themselves. If a student with no natural liking enters a medical college, he is bound to suffer failures. I had an opportunity recently to interview a student applying for a stipend. This candidate had not passed any examination without attempting at it 3-4 times. He had already made some attempts at the final as well. To my question as to why he was so indifferent to his studies and inflicted a heavy financial burden on his parents, his reply was that he had no liking for medicine, but his parents wanted him to be a doctor. Could you blame an examiner if such a student failed?

Selection of Teachers

As it is necessary to select students with aptitude for medicine so it is in the selection of teachers with aptitude and capacity to impart knowledge to others. The present system of selection of teachers is based on the academic and professional merits of the applicants. These are certainly essential factors, but it has been found in a good few cases that people with distinguished academic career and brilliance in the practice of their speciality did not know the art of teaching and did not possess the capacity to impart knowledge to the students. They were failures as teachers. Nothing more could be desired if both brilliance in the subject and skill in teaching are found in a teacher; but I would not hesitate to recommend to sacrifice a little of brilliance in a teacher but not of the art of teaching. The future progress of medicine depends upon the foundation laid in the students. Such a foundation can be laid well by good teachers. Not only they should possess the art of teaching but the love for teaching and an intention to devote their time and energy for it. No one should be entrusted with responsibilities of teaching as a part of his compulsory duties of a post of a specialist at a teaching hospital, unless he possesses qualities to be a teacher. It is equally important that one unsuited should not hold on to a post of a teacher to use it only to further his own ends; as, such a tendency amongst our teachers in medical colleges and schools has worked detrimentally to the interest of the students and to advance in research in medical sciences. I was informed that in one of the teaching institutions of our province a couple of teachers were getting very popular and their clinics used to be crowded by the undergraduates and a number of post graduates applied to work with them while others were not so patronised. The authorities put restrictions on a number of post graduates to be attached to each teacher. This was possibly done with the best intentions that the post graduates would get enough clinical material if they were equitably distributed; but the proper course for the authorities was to find out why the post-graduates preferred certain teachers only. It was best for the authorities to leave a free choice to the post-graduate to select his own teacher. Such a free choice would benefit not only the post-graduate but would create healthy rivalry amongst the teachers to make their teaching more attractive. I would wish a free choice of teachers not only for the post-graduates but for an undergraduate and not from one institution but from institutions throughout the country. In Germany all the universities were so linked and curriculum so arranged and the teachers were so recognised that an undergraduate could select a teacher for a particular subject at any university in the country and a certificate of his study from that teacher would be accepted by the university where he registered himself for his medical studies. As soon as he had fulfilled the conditions of studies and collected the necessary certificates he was entitled to appear for his examination. This system gave splendid opportunities to a student to learn his medicine thoroughly with the least expense of time and money. It created stimulus amongst the teachers who continually tried to excel their colleagues and thus kept the standard of teaching and scientific research enviably high.

I would wish such an ideal was kept before us for our country when the plans were made for the reconstruction in the system of medical education. When such an ideal is reached there would not be crying over the high percentage of failures at the examinations, inefficient, and irresponsible teachers, low standard of general practitioners and paucity of research in India.

Full Time Teachers

It has been suggested in some quarters that the teaching in medicine would improve if it was imparted by full time professors even in clinical subjects. I, for one, believed that if the clinical subjects were taught by teachers who were in private practice and were in touch with the people, with their habits and ways of living, knew their psychology and were acquainted with their economic conditions, met emergencies requiring them to take quick decisions, would prepare the students to be useful, practical and self relying physicians. In spite of this, there is a necessity of having one unit in each clinical subject staffed with a full time professor who can devote his time in organising and co-ordinating the

teaching, pay attention to the problems of research, collect statistics of the work done in the subject at the institution, guide the junior staff and look to the administration of the department. The usefulness of such a unit will be secured if it is staffed with a professor, a competent clinical assistant, a pathologist and a steno-typist, all working on full time basis. The unit must have easy approach to other laboratories and interallied departments of the hospital.

Medium of Instruction

The ideal of a free choice of a teacher leads me to the question of medium of instruction in the medical colleges, very enthusiastically and passionately debated to-day both by the educationist and politicians. A memorandum was presented to the Congress Government in this Province in 1939 by some teachers in medicine advocating that teaching in medicine, should be in the students' mother tongue. In Bombay Province this should be done through Gujrati in Gujrat, Marathi in Maharastra, Kanarese in Karnatak and in the city of Bombay in all the languages. Others advocated an adoption of one common language for teaching medicine throughout the country.

The advocates for the adoption of mother tongue put forward the following reasons:—

1. "The medium of education in medical colleges being English, the most desirable co-operation between the physician and the patient does not exist to the same extent as in other countries".

2. "It is for this reason that contribution to the advance of medical knowledge from the people of the country have been relatively meagre and a large number of medical men fail to appreciate the essential differences between the scientific method which is taught to them in another tongue and scholastic speculation which they come across in writings of their own language".

3. "Education when it is imparted in the mother tongue leaves more lasting impressions in the minds of the individuals and stirs up mental processes which are more conducive to research and reasoned thinking".

I personally do not think that the first two complaints can have anything to do with the language adopted. The 3rd point certainly demands careful consideration. There are no differences of opinion on the necessity of adopting the mother tongue for instruction in primary and secondary schools; but if the provincial language is adopted for teaching medicine there is every chance of deterioration in the standard of education and of a set back in the advance of knowledge.

(*a*) There will be scarcity of text books in the various subjects and subjects in medicine are many. Medical science is advancing and text books need revision every few years. The scale of books in provincial languages being naturally very limited, it would be extremely costly to take out revised editions of the text books to be written on one subject by many authors.

(*b*) Teachers and workers in the field of medicine will not be tempted to write their contributions in a provincial language for fear of its not being read and criticised by his colleagues in other parts in India and the outside world.

He would take it as waste of his labours and energy if his work could not be made known to people interested in the subject outside his province. Some of you might have felt an urge to publish your article in a foreign journal in preference to an Indian one in order to make your work known to a larger section of the interested people. One cannot expect a medical student, and doctors to learn over a dozen of provincial languages of India, and some foreign languages.

(*c*) There will not be easy exchange of students and teachers between various provinces with a result that each province will suffer from scarcity of eminent teachers and will have to remain satisfied with those of mediocre calibre. The students will have a limited field of gaining knowledge in medicine and its allied sciences.

(*d*) It will be disastrous if the enthusiasm extends to translating the scientific terminology in provincial languages. If we want to remain abreast with the world in the progress in medicine, it is imperative we adopted an international terminology and incorporated in it Indian terminology commonly used and understood throughout the country. This will make it easy for our students and teachers to make use of books and journals written by others.

(*e*) By adopting a provincial language for higher education we will remain in a water tight compartment and instead of developing as a nation, we will be increasing the provincialism in every walk of life. Whatever an idealist may say, one cannot close one's eyes and ignore the facts and run away from actual results. Reservation of admissions to the medical study, allotments of scholarships and appointments in services on communal basis have been one of the important causes of high percentage of failure in examinations and increase of inefficient personnel in the services. Add to this, teaching medicine through a provincial language and invite further deterioration in the standard of education and inefficiency in medical relief.

If the ideal I placed before you a little while ago is to be reached some day, the medium of instruction to be selected for medicine should be such as would be universally understood throughout India. I believe Hindusthani is the only language best suited for the purpose. After all it cannot be taken as a foreign language to the people of any province except perhaps the South. If Hindusthani is taught from secondary schools in the way English is taught today, in a very short time we will be able to adopt it for instruction in colleges. It will not only be a nation building but most economical and enriching the literature. Experiments at Hyderabad and other smaller countries in Europe have not been at all encouraging. One cannot close one's eyes to the world changes going around us. English is becoming more and more the language of international communication of thought and action. It will be necessary for every student of medicine to be so acquainted with English as to enable him to understand the contributions to medicine from other countries and to communicate his to the colleagues in the world. What we really want is the increase of Regional Universities with a common medium of instruction rather than those based on provincial and sub-provincial languages.

Curriculum

Ladies and gentlemen, I have already taxed your patience but you will excuse me if I bore you a little longer on one or two more points. The existing curriculum has been certainly very heavy. The grouping of subjects and the spacing of examinations inflict tremendous strain on the student. The curriculum should be based on the needs and conditions of the country. It should be at the same time such as to make a candidate a good general practitioner. A lot of unnecessary details in the study of pre-clinical subjects can be cut out and time saved for acquiring clinical knowledge. During his study of clinical subjects, tendency to impart him specialised knowledge in various subjects both major and minor, knowledge which he will have no opportunity to put into practice should be eliminated. Medical science has made great strides in its advance. A student should be generally acquainted with its various aspects and should have knowledge of their basic principles but he should not be burdened with the obsolete theories and intricacies of the technique of operations, laboratory methods and working of elaborate diagnostic processes and appliances—unnecessary time and energy of students should not be wasted in giving him knowledge of diseases he would rarely see in the country. He should be trained to be self-reliant in his practice, to use his eyes and ears, well-develop his observations and his clinical acumen. He should be trained to bring to bear on his diagnosis and treatment, the psychology of his patient, his environments and habits and look to the body and mind as a whole before coming to conclusions. He should be taught the beside manners and how to approach his patient with sympathy, care and confidence. Love should be created in him to keep notes of his cases and compare them at leisure so that when he enters practice he will continue it. The examinations and grouping of subjects for them should be so arranged as to inflict as little strain on his mind and body and cause as little dislocation in study as possible.

Indigenous System

There is an important problem of how to develop the study of indigenous systems of medicine, Ayurvedic and Unani, and how to utilise the same. However much I would like to speak on this and other important problems, time does not permit me to do so; but this much can be said that the system adopted by the Government of Bombay is merely waste of money and energy and leads to creation of half baked Ayurvedic and Unani doctors who are likely to be inferior type of allopaths and thus discredit the old and valuable systems.

General Atmosphere

Ladies and Gentlemen, Since the war took a turn in favour of the allies, various countries began to think of post-war reconstruction in the matter of social security of the people. Government of India has also taken up this question. It has appointed a committee under the chairmanship of Sir Joseph Bhore to prepare plans for reconstructions in the public health services, medical relief and medical educations. Plans for health insurance for industrial workers are being prepared by Prof. Adarkar. Experts from foreign lands were and are being invited to tender advice to this committee. When these plans of the Government Committees are ready and accepted by the Government, it will be the medical profession who will be called upon to work them. It is not known yet, in what manner the profession will be asked to undertake to work those plans, what responsibilities will be thrown on it and in what manner our interests will be safeguarded. In the past Government and the public have taken advantage of the secluded life the profession has led, and have exploited it. The struggle for existence is getting increasingly hard and the profession cannot exist only on noble traditions and high ideals. However much we wish to keep the banner of "Service to Humanity" flying high, the economic strain on the profession is bound to break its morale some day. My appeal to the members of the profession and to the students, who will be very soon colleagues in the profession, is to keep themselves abreast with the developments in the country and remain vigilant and active in safeguarding their interests. It is only an organised body, working as your representative, who can keep the profession prepared to meet the situation as may arise and fight effectually to safeguard your interests—be you in service or in independent practice. It is upto you to lend your support to such an organisation.

Medical student is a part and parcel of the medical profession. He has to remain acquainted with the current and future problems of health and sickness in the country and be alive to the responsibilities, he will be called upon to shoulder when he joins the rank in the profession. I believe it will be very helpful to the students, if the Indian Medical Association, so changed its constitution as to enable to take the medical students under its fold from the time he registered himself for medical studies and devoted a few pages of its journal for the benefit of the students. I am sure the students will appreciate such a step of the Indian Medical Association.

Before I finish I would like to address a few words of advice to my future colleagues. Keep your physically fit by proper attention to your diet, exercise and habits; Medical career is a hard life both as a student and as a practitioner. Allow no prejudice of caste, creed, religion and class to hamper development of your character and ideal in life so that when you enter the profession you can serve the people well and be worthy members of the profession. Devote as much time as you can at the beside of your patients. Try and learn to diagnose and treat common ailments. You will hardly ever be asked to remove a cataract or do a gastrojejunostomy or to perform a pneumothorax while you are in general practce, but you cannot be excused if you fail to diagnose trachoma, amœbic from bacillary dysentery or to diagnose a case of an acute abdomen with your clinical knowledge and experience gained at bed side. Laboratory and other diagnostic aids are important but they can be helpful when your clinical knowledge is sound.

CASE NOTES

ATYPICAL MENINGOCOCCAL MENINGITIS

P. N. LAHA, KH. M. M. ANSARI
AND
K. K. MISRA.

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S., 10 years, Muslim male child, was brought to the hospital for the treatment of coma. The patient was perfectly fit with no complaints whatsoever on the previous night. At about 4 a.m. on the day of illness the patient woke up and gave a sudden cry and became unconscious. The duration of the unconsciousness when the patient was brought to the hospital was 8 hours.

Physical Examination—Patient in deep coma. Pupils widely dilated with a very sluggish reaction to light. Temperature 97·6°F., radial pulse not felt, respiration shallow. Frothly exudate trickling out of mouth. Neck soft, exaggerated tendon jerks, bilateral extensor plantar response. Kernig's, Brudzinski's signs completely negative. Bladder full and evacuated automatically during examinaton. Heart, lungs and urogenital system revealed no abnormality.

Progress and Treatment—40 c.c. 25 per cent glucose with ½ c.c. of adrenaline chloride was injected intravenously and 1 ampoule of coramine subcutaneously. Ten minutes after these injections radial pulse could be felt but it was very feeble. A lumbar puncture was done and about 30 c.c. of turbid cerebrospinal fluid was drawn out under very high tension. The fluid showed presence of pus cells, meningococci were isolated and there were sugar 40 mgm., chloride 700 mgm., albumin in traces. Blood was examined and there was no malarial parasite. The differential count of the blood was: polymorphonuclear 78 per cent, lymphocyte 20 per cent, large mononuclear 2 per cent, eosinophils 0 per cent, basophils 0 per cent. The film showed leucocytosis. 4 tablets of Cibazol were given by mouth followed by 2 tablets every three hours. Patient gained consciousness about 2 hours after the initial Cibazol treatment.

Points of Interest—1. Sudden dramatic onset of deep coma which simulated a cerebrovascular lesion. 2. A state of complete collapse within so quick an interval. 3. Absence of any febrile reaction. 4. Complete absence of neck rigidity, Kernig's and Brudzinski's signs. 5. Presence of brisk tendon jerks with bilateral extensor plantar response. This was indicative of temporary interruption of the function of pyramidal system due to coma. 6. A very quick response as indicated by the return of consciousness within about 2 hours of administration of Cibazol. 7. The onset and course of the disease do not fit in with any book description.

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OPIUM-POISONING CAUSING SEVERE CONVULSIONS

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Opium is one of the most common drugs for suicidal purposes. In all such cases in adults, we usually find the typical book-picture of depression such as slow respiration, lethargy, cyanosis, pupillary contraction, etc. These actions are mostly due to depression of the respiratory centre by opium. But, some of the opium alkaloids act like strychnine on spinal cord and produce generalised tetanic convulsions. We see rarely cases with such finding as most of the cases show respiratory features. The following is the report of such a case where there were generalised contractions due to opium poisoning:

Case Report—The patient aged 35 years was admitted one evening under me. The patient had slow respirations, contracted pupils and was dull mentally. The house-physician thought it to be 'Opium poisoning' and tried to get any history out in vain. He then gave stomach-wash, contents of which smelled of opium and started the usual treatment. As the respiratory rate went down, the patient was put into 'Iron-Lung'. Next morning when the patient was still in the 'Iron-Lung' he started bilateral generalised convulsions. Respiration rate was 16 per minute. The patient was removed from 'Iron-Lung'. The convulsion became more frequent. When I examined him, I found that the patient was deeply unconscious, pupils were dilated and fixed but other cranial nerves were normal, there was wide spread rigidity all over the four limbs; neck was also rigid; there was no paralysis detected in any limb; convulsions were bilaterally symmetrical. Plantar reflexes were extensor on both sides. Abdominal reflexes were absent Tendon reflexes could not be obtained due to severe rigidity and there were no sphincter disturbances. Pulse was 120 per minute and temperature 102°F., blood pressure 120/80. Urine examination report was normal and blood slide examination was also normal. Lumbar puncture was done: C. S. fluid was clear and on examination it was normal. These things were done just to exclude any other concurrent incidence. The patient started getting convulsions more frequently and with more intensity. No sedative drug could relieve the patient and he ultimately died in the evening—*i.e.*, after 24 hours of admission.

Post Mortem—An autopsy was obtained. Stomach, intestines—markedly congested. Both contained plenty of black, oily opium-smelling stuff. No lesion could be found anywhere in brain. All other systems found normal. We sent the materials to chemical analyser, who later on reported it to be "opium poisoning", alone.

Comment—Interest of this case lies, in the rarity of this complication. Convulsions in opium poisoning in adults are rarely seen and that even so later after ingestion of the poison. The patient exhibited features of some intracranial catastrophe, as he became unconscious with extensor reflexes and wide-spread rigidity and convulsions. The convulsions in children due to opium pills are frequently seen. This is due to different actions of different opium alkaloids at different sites. The

following pharmacological actions will explain the above happenings of the case reported. The alkaloids of opium are divided into two chief groups: (1) Phenanthrene and (2) Isoquinoline. The phenanthrene series, include morphine, codeine and thebaine. The action of this group is to increase the tone of plain muscle. Morphine, etc., excite the reflex excitability of the spinal cord. This action is more marked with opium. Morphine and thebaine form a series of descending potency as narcotics and as of increasing power as spinal convulsants. The *isoquinoline* series include narcotine laudanoline, narceine, papavarine, etc. The action is to relax the tone and inhibit the movement in plain muscles. Narcotine, thebaine, laudanine and hydrocotarnine increase reflex excitability, cause restless tremors and finally *"tetanic convulsions"* while papavarine, narceine, protopine and cryptopine are more purely narcotic like morphine.

All opium alkaloids possess in different degree a strychnine like action upon the cord. Thus the action of opium on central nervous system is a curiously irregular one. It depresses certain centres much more than the others and has a distinct stimulant action on certain functions."

These facts explain the convulsions in this case.

Acknowledgment—I thank the Superintendent of the Hospital. for permission to publish this case report.

(*Continued from page 288*)

of protective foods so as to make them available even to the poor as these are vitally necessary in the balanced diets of the people.

XXVII. *Indigenous Manufacture*—This Conference views with some satisfaction the successful efforts in the Provinces in starting concerns of manufacturing equipments & drugs and demands that these industries be encouraged in the Post War Plans, by protective tariffs on all foreign products and by giving subsidy to local industries.

XXVIII. *Free Milk & Spectacles to poor students*—This Conference takes a grave view of the recent deterioration of the health of the students population as is shown by the report of the University of Bombay for the year 1944, on the health of the College students, and recommends free supply of milk to all poor school and college students. The Local Bodies should supply in the case of Primary Schools and the Government in the case of Secondary Schools and Colleges. This Conference further advocates the free supply of spectacles

XXIX. *Condolence*—This Conference expresses its deep sorrow at the sad and early demise of the following members of the Indian Medical Association and offers sympathies to their families:—

1. Dr. G. D. Damle, Nasik. 2. Dr. A. V. Warti, Nasik. 3. Dr. R. Padbidri, Bijapur. 4. Dr. P. G. Gogte, Sholapur. 5. Dr. J. A. Deshmukh, Sholapur.

XXX. *Thanks*—This Conference offers its grateful and sincere thanks to the Chairman, The Secretaries, The Members of the Conference Committee and other Members of the Reception Committee, for making necessary arrangements to hold the VII Session of the Maharashtra and Karnatak Provincial Medical Conference at Sholapur and for the hospitality given to the delegates in these abnormal times surmounting all difficulties.

XXXI. *Thanks to the retiring President*—This Conference places on record its grateful thanks to Dr. B. V. Mulay, M.S., Sholapur, the retiring President of the Provincial Council of the Maharashtra and Karnatak Provincial Branch of the Indian Medical Association for his devoted services to the cause of the Provincial Council and for his energetic efforts to increase its Branches and Membership.

This Conference appeals to those Medical Practitioners of Maharashtra and Karnatak, who have not already joined the Indian Medical Association, to make it a point to do so in the interests of the Profession and to make the Association a forceful organisation.

22ND ALL-INDIA MEDICAL CONFERENCE

The following office-bearers were elected at a meeting of the Reception Committee of the Conference which is to be held in Amritsar by the end of December, 1945:

Chairman—Dr. H. F. Maneckshaw.
Senior Vice-Chairman—Dr. Chunilal Bhatia.
Vice-Chairmen—S.B. Dr. Sohan Singh, Dr. Amir-ud-Din, R.S. Dr. Het Ram Aggarwal, Col. Amir Chand (Lahore), Dr. R. S. Sharma (Ferozepore), Dr. Chowdhari Mohammad Nawaz (Lyalpore).
Hony. General Secretary—Dr. Faqir Chand Shori.
Hony. Joint General Secretary—Dr. R. K. Malhoutra.
Hony. Organising Secretary—Dr. Sain Das Vohra.
Assistant Organising Secretaries—Drs. Jugal Kishore Nayyar, Ram Lal Khorana, Imtinan Ilahi.
SCIENTIFIC COMMITTEE:—*Chairman*—Dr. Manmohan Singh. *Secretary*—Dr. Balbir Chand Bhandari.
EXHIBITION COMMITTEE:—*Chairman*—Capt. Dr. M. S. Segat. *Secretary*—Dr. Harbhajan Singh.
ACCOMMODATION COMMITTEE:—*Chairman*—Dr. Bodh Raj Nanda. *Secretary*—Dr. Monohar Lal Kapur.
FINANCE COMMITTEE:—*Chairman*—Dr. R. K. Malhoutra. *Secretary*—Dr. Bhagwan Singh Uppal.
PUBLICITY COMMITTEE:—Dr. Ishar Das Bhatia. *Secretary*—Dr. Fakhar-ud-Din.
ENTERTAINMENTS COMMITTEE:—*Chairman*—Dr. Sujindar Singh. *Secretary*—Dr. R. P. Malhoutra.
SANITATION COMMITTEE:—*Chairman*—Dr. S. Rozdon, M.O.H. *Secretary*—Dr. Gian Singh.
RESOLUTIONS COMMITTEE:—*Chairman*—Dr. B. L. Kapur. *Secretary*—Dr. R. C. Goulatia.
MEMBERS OF THE EXECUTIVE COMMITTEE:—Dr. B. L. Kapur (Lahore), R.S. Dr. S. N. Kaul (Lahore), Dr. K. L. Pathak (Ludhiana), Dr. Gurmukh Singh (Tarantaran), Dr. Baldev Singh, Dr. (Miss) S. Bhatia, Dr. Shanti Sachdeva, Capt. Dr. Tulsi Das, Dr. Anup Singh, R.S. Dr. Guran Ditta Kapur, Dr. Kakhar-ud-Din, Dr. Manohar Lal Chopra.

Hall Gate
Amritsar

FAQIR CHAND SHORI
Hony. General Secretary
22nd All-India Medical Conference

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, AUGUST, 1945

SULPHONAMIDE CHEMOTHERAPY OF INTESTINAL INFECTIONS

Till the addition of sulphonamides in the armamentarium of a physician, treatment of intestinal bacterial infections were mainly symptomatic with good, bad and indifferent results depending on the general condition of the patient. Even with the discovery of this group of drugs it took nearly ten years to find out a suitable solution of the problem and even now the problem cannot be taken as solved. A stimulating article by Iswariah and Kutumbia on the subject published on another page of this issue of the Journal will, therefore, be an important item of reading. To use this group of drugs in these diseases, we face a great problem as the patients are running a negative water balance with dehydration and that is one thing which enhances the toxicity of these otherwise useful group of drugs. The second difficulty that confronts us is that certain patients suffering from intestinal bacterial infections start the disease with vomiting, which is often aggravated by exhibition of a sulphonamide. The third difficulty is that with this group of drugs, a rather large amount of alkalies is being advocated and that again upsets the intestinal functions. So to find out an ideal drug, specially a chemotherapeutic drug was not easy. And a search for a new antipathogen which will successfully deal with the typhoid-salmonella group of infections is still going on. The most difficult part of the problem is the inability of the pathologist to help us, as it is not possible to reproduce these diseases in the laboratory animals. So we are to depend mainly on the test-tube results. Schweinburg and Yetwin[1] carried out researches with a number of new preparations of sulphamerazine, sulphadiazine and sulphathiazole. The new preparations were formed with addition of phthalyl radicle to the drugs.

"The results showed that *in vitro* sulphamerazine and phthalyl sulphadiazine were more effective than sulphadiazine against the dysentery organisms but less so against typhoid-paratyphoid group. The addition of the phthalyl radicle to sulphamerazine decreased its activity against all intestinal pathogens, while phthalyl-sulphathiazole had no advantage over sulphathiazole itself. Hoagland[2] has used sulphathiazole in a number of enteric patients with results which are not at all convincing. He treated 59 patients who were hospitalised. The patients were mainly between the ages of 12 and 16 and almost all of them were infected with the same strain of Eberthella typhosa. Administration of sulphathiazole had no effect on the course of illness, complications, mortality rate, or occurrence of carrier state. Hence, so far as this group of disease is concerned we are as yet far from the solution. It might be pointed out here that an Editor[3] considers enteric-coated tablets of the more active sulphonamides—*e.g.*, sulphathiazole and sulphadiazine—to ensure a local antiseptic action in the lower part of the bowel, as worthy of more consideration.

The dysenteric group of infections, however, have been attacked well with a number of drugs of the sulphonamide group. The only problem that remains in the field is to find the least toxic and most potent drug. But here also unanimity is yet to be reached. Sulphanilamide was the first drug of the group to be developed, and we became overenthusiastic and we thought to have found a panacea of all diseases. But soon it was discovered that it was not equally effective against all infections.

Similarly, sulphapyridine has been used against all infections with good, bad and indifferent results. But one thing goes against these two groups of drugs—both of them are highly toxic. The principal drawback to the use of sulphapyridine is the tendency to cause nausea and vomiting. With the advent of sulphathiazole and sulphadiazine, the chemotherapy has become less hazardous.

Buttle[4] in 1938 discovered Sulphaguanidine, but its clinical use started after Marshall *et al*[5], advocated it in 1940. These workers emphasised its solubility yet poor absorption from the gastro-intestinal tract. These results were confirmed by Roblin and Winnek (1940)[6] Since then various good results were published by Marshall *et al*[7], Lyon[8], Anderson and Cruickshank[9], Fairley and Boyd[10], Bulmer and Priest[11], Brewer[12] and Henderson[13]. Austin C. Clay[14] has recently reported a series of 273 cases of bacillary dysentery. Of these, 140 received no drug, 83 were treated with sulphaguanidine and 50 had sulphanilamide. The results were very interesting. The stay in the hospital and the number of days during which the stools remained positive were reduced by half in the sulphaguanidine-treated group. He also found that in four cases of gastro-enteritis in children and in 8 cases of paratyphoid, sulphaguanidine had no effect.

This was also the experience of Gunn[15] who analysed 411 cases of gastro-enteritis in children. And this is what he wrote, "No specific drugs are available so far.....sulphaguanidine of proved value in

[1] Schweinburg and Yetwin—*New Engl. J. Med.*, **230**:510, 1944.
[2] Hoagland, R. J.—*J. A. M. A.*, **122**:653, 1943.
[3] Editorial—*Brit. M. J.*, **1**:158, 1945.
[4] Buttle, G. A. H. *et al*—*Biochem. J.*, **32**:1101, 1938.
[5] Marshall *et al*—*Johns. Hopk. Hosp. Bull.*, **67**:163, 1940.
[6] Roblin, R. O., June and Winnek, P. S.—*J. Amer. Chem. Soc.*, **62**:1999, 1940.
[7] Marshall *et al*—*Johns. Hopk. Bull.*, **68**:94, 1941.
[8] Lyon, G. M.—*J. A. M. A.*, **116**:2440, 1941.
[9] Anderson, D. E. W. and Cruickshank—*B. M. J.*, **2**:497, 1941.
[10] Fairley N. H. and Boyd, J. S. K.—*Lancet*, **1**:20, 1942.
[11] Bulmer, R. E. and Priest, W. M.—*J. R. A. M. C.*, **79**:277, 1942.
[12] Brewer, A. E.—*B.M.J.*, **1**:36, 1943.
[13] Henderson, J. L.—*B.M.J.*, **1**:410, 1943.
[14] Clay, A. C.—*B. M. J.*, **2**:13, 1943.
[15] Gunn, W.—*Brit. J. Child. Dis.*, **41**:1, 1944.

dysentery has not been found helpful; sulphasuxidine, 1 gm. 4-hourly omitting 2 a.m. dose, for 4-5 days, may check excessive fermentation and permit early administration of glucose by mouth and is worth trial, ... In view of the importance of parenteral infection in the causation of this disease sulphadiazine or sulphamethazine should be given orally....."

From this it may be deduced that while we are dealing with parenteral group of diseases, we should use more soluble group of drugs. But in the case of adult, specially in Flexner and Shiga group of infection, ample evidence is now available to prove that the most suitable drug will be sulphaguanidine or succinyl-sulphathiazole. But in the cases of Sonne dysentery, Swyer and Yang[16] consider sulphabenzamide and sulphamidobenzamide much more superior to other drugs. They report a series of 179 patients. They found that improvement in characteristics of stools was marked with sulphamidobenzamide. This confirms the findings of Yannet *et al*[17] who treated 27 cases of Sonne dysentery with sulphathiazole, with rather anomalous results, the time needed to obtain bacteriological clearance being actually longer in the drug-treated cases than in controls.

The contribution of Iswariah and Kutumbiah should, therefore, be interpreted against this background of established facts, and we would urge other workers to work in this line to help clinicians to come to a definite conclusion.

DEATH AND DISEASE IN THE BENGAL FAMINE

Unfortunately, Part II of the Famine Commission's report which deals with death and disease in the Bengal famine, has not received much prominence in the discussions after its publication. We remarked about the high mortality from epidemic diseases during and after the famine[1] but could not give accurate data about them which are now possible. One word is necessary here about famine mortality. During the famine period there was much shyness about the words 'famine' and 'deaths from starvation.' Instead 'vagrants' and 'deaths from diseases' were more liked. "The difference between death from simple starvation and death occurring in a starved individual who is suffering from disease is of medical interest, but a negligible difference when the broad facts of famine mortality are under consideration"[2]. It was found that malaria (mostly malignant), dysentery (sometimes amœbic but more often bacillary), pneumonia, cholera, nephritis, bronchitis, small pox, 'Naga sore', tuberculosis, anæmia, urinary tract infections were the commoner diseases among the destitutes. Amongst these, severe epidemics of malaria, small pox and cholera were associated with the famine:

"From July to December 1943, 479,039 deaths from malaria were recorded, an excess of 266,208 deaths (125·1 per cent) over the quinquennial average. In the first 6 months of 1944, malaria mortality figures were of the same order, 400,901 deaths were recorded, which was 223,664 deaths (126·1 per cent) above the average"[3]. "The total number of deaths from cholera reported from July 1943 to June 1944 was 218,269 that is, 309·7 per cent in excess of the quinquennial average for 1938-1942. As compared with malaria and cholera, small pox was a relatively unimportant cause of mortality in 1943. Reported deaths numbered 22,005, the quinquennial average being 7,991. A severe epidemic, however, began in December 1943 and raged during the first half of 1944, reaching its peak in March and April. From June onwards it declined. During the months January to June 1944, the number of deaths from small pox was 125,471 that is 118,841 in excess of the average. Some 28 per cent of the excess mortality during this period is accounted for by deaths from small-pox".

"We have estimated that there were some 1·5 million deaths in excess of the average in 1943 and the first half of 1944. It is impossible to separate these into groups and to assign a proportion to starvation and under-nutrition, another proportion to epidemic diseases and yet another to non-epidemic diseases. The famine and its effects on the life of the people must be held generally responsible for the high excess mortality recorded under all the headings in the mortality table"[4].

We have given above the mortality figures of the main epidemics only. But are they accurate? How the figures were collected and who reported these deaths from various diseases especially in the rural areas? In the villages the *Chowkidar,* is the primary collector of mortality statistics. He reported deaths to the union board office, from where by several stages the records reached the Director of Public Health. Can any one rely on such figures? There is no doubt that the official figures underestimate the number of deaths. Although some improvement in collecting statistics was made in 1944, we think by this time the village *Chowkidar,* has gone back to his old job, a primitive method in modern times.

The mortality figures show that almost whole of Bengal was in the grip of famine and the epidemic diseases which followed. The extent of area involved made the problem of cambating epidemics and providing medical relief an enormous one. When diseased destitutes had to be treated it was revealed how inadequate was the hospital accommodation in the province and how poorly hospitals were run. By the end of September 1943 over 2,000 beds were opened in Calcutta and its suburbs. By January 1944 it was reported that some 13,000 beds were available and the number in July 1944 reached 18,250. In November 1943 sixteen military hospitals with 2,100 beds and 50 mobile military medical units were placed at the disposal of Bengal. "If a Public Health Organisation is to be capable of meeting emergencies, it must reach a certain degree of efficiency in normal times. In Bengal the public health services were insufficient to meet the normal needs of the population and the level of efficiency was low. The same can, of course, be said of public health organisation in all parts of India, but that in Bengal was below the standard of certain other provinces"[5]. It was proved that the hospitals throughout Bengal with certain exceptions were poorly equipped and badly run. The peculiar Public Health Administrative system with its old rusty organisation could not wake up to offer its best in time of emergency.

[16] SWYER, R. AND YANG, R. K. W.—*B.M.J.*, **1**:149, 1945.
[17] YANNET, H. *et al*—*J. A. M. A.*, **120**:184, 1942.
[1] Editorial—*J. Indian M. A.*, **13**:232, 1944.
[2] Famine Enquiry Commission—Report on Bengal. Published by the Manager of Publications, Delhi, 1945, p. 116.
[3] *Idem*—p. 119.
[4] *Idem*—p. 120.
[5] *Idem*—p. 132.

The opinion of the Commission regarding its personnel and its administration is so poor that the Government should completely overhaul it immediately. Because during this famine there was almost a complete breakdown of health services affecting both the centre and the periphery.

The backwardness was not only in the personnel and organisation. The most serious handicap was the scarcity of drugs. Lack of anti-malarial drugs and lack of personnel for vaccination against small pox and inoculation against cholera further enhanced the death rate. The worst part of it is that although enough lymph and fair amount of quinine were stocked in certain quarters, they could not be distributed because of the usual red tape. The Commission reckons "that in November, 1943, there were about 43,000 lbs. of quinine available in Bengal undistributed."[6] Although 23,253,976 vaccinations and 11,628,020 inoculations against cholera were carried out in the first five months of 1944, they were too late to stop the onset of the epidemics. The Emergency Hospital Organisation was also far from satisfactory. Conditions in some of them were indescribably bad. Referring a certain hospital in the suburb of Calcutta, the commission remarks "Visitors were horrified by the state of the wards and the patients, the ubiquitous filth and the lack of adequate care and treatment"[7]. Regarding the main malady "Starvation" during the famine it is recorded that 110,000,000 free meals were provided. There were many who could not take the gruel distributed in the free kitchens or even hospital diet. The report has not considered in detail the treatment of cases of acute starvation. A considerable amount of success has been reported[8 9] on the use of protein hydrolysate in patients who were so far weakened* by starvation that they were unable to take anything by mouth. It is unfortunate that this valuable work was not followed further and it was left to be investigated on a more scientific basis in the starved people of the liberated areas of Europe especially in the camp at Belsen.

The Commission has remarked about the difficulty of obtaining enough civilian medical officers of satisfactory calibre to meet the emergency. Enough doctors could not be recruited even from other provinces. Reasons given for this lack of recruitment are (*a*) release of medical officers for services (*b*) doctors were reluctant to serve in the rural areas under condition produced by the famine (*c*) pay offered was not attractive enough. By the end of June, 1944, 328 doctors had been obtained for famine work and this was about half the number which the Government of Bengal estimated to be necessary. The reasons put forward by the Commission are partly true. In this connection, we would like to draw the attention of our readers to an open letter to the daily press by the Hony. General Secretary of the Indian Medical Association and published in the Journal[10]. Following an appeal for 350 doctors by the Bengal Premier at Karachi, the Indian Medical Association took up the initiative to recruit 83 doctors from different provinces and sent their names to the Surgeon-General with the Government of Bengal between 20th January and 18th February, 1944. During a long drawn negotiation it transpired that knowledge of Bengali language was the pre-requisite of such recruitments. Naturally the enthusiasm created amongst the profession for such a humanitarian and emergency work died down. May we ask whether all the doctors lent by the Central Government or by the military had the knowledge of Bengali language? We believe that if the request of the Surgeon-General to stop recruitment of non-Bengali speaking doctors had not come, the Association would have succeeded in supplying more than half the number of doctors that were appealed for by the Bengal Premier in his Karachi speech. Language difficulty is not an insurmountable obstacle in the treatment of patients or in an organisation for preventive vaccination and inoculation. The work of Indian doctors in China proves that in an emergency the field of work is so wide and varied that languages rarely seem to be an obstacle. But the Bengal Government has its own way of thinking and so the remark of the Commission about the lack of doctors from other provinces is hardly justified.

What about the future of the province of Bengal? The course suggested by the Commission[11] is that

> "In the circumstances considerable effort is needed, first to restore health to the low pre-famine level, and next to bring about general improvement. Health conditions in Bengal are likely to remain abnormal until the end of 1945 or for a longer period and the need for the additional organisations created for famine work has not disappeared. Further it is essential, in the interest of future development, that what has been gained should not be lost. We have referred to the inadequacy of medical and Health Service in normal times. No doubt there may be certain hospitals opened during the famine which are now no longer needed in the places in which they are located, and some of the additional Health workers employed on special tasks in various famine areas may now appear to be superfluous. But Bengal as a whole needs more hospitals and health workers and every effort should be made to turn over the temporary famine and medical relief organisation to the permanent service of the province."

Thus ends the sad story of a belated effort to bring the situation under control. Bengal lost 1·5 million of its population who died of starvation. The Commission blamed every one but unfortunately has not made any one responsible. The conclusions reached look more official than really going deeper and finding out the guilty persons who played with the lives of 1·5 million. It is not perhaps realised that even Hitler and Tojo together could not claim so many kills.

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[6] Famine Enquiry Commission—Report on Bengal. Published by the Manager of Publications, Delhi, 1945, p. 138.
[7] *Idem*—p. 138.
[8] NARAYANAN AND KRISHNAN—*Indian M. Gaz.*, **79**:158, 1944.
[9] KRISHNAN, NARAYANAN AND SANKARAN—*Ibid.*, **79**:160, 1944.
[10] *J. Indian M. A.*—13 Supplement, p. lxxiii, 1944.
[11] Famine Enquiry Commission—Report on Bengal. Published by the Manager of Publications, Delhi, 1945, p. 141.

CURRENT MEDICAL LITERATURE

Gastrointestinal Disorders Simulating Circulatory Disease

Groedel (*Am. J. Digest. Dis.*, **12**:73, 1945) writes that gastrointestinal and circulatory diseases may be present simultaneously. In such instances the pathogenesis of both may be a common one, namely (*a*) disturbance in the autonomic nerve system, (*b*) poor blood supply in certain areas, (*c*) focal infection. In patients with gastrointestinal disorders, heart disease may develop as an independent second disease and vice-versa. All varietis of gastrointestinal diseases may lead to an erroneous diagonosis of heart disease due to the radiation of autonomous reflexes. Especially important amongst these are those suffering from reflex angina pectoris. The patients with diaphragmatic herniation, mainly with hiatus herniac, must be mentioned as a separate group. In these cases the differential diagnosis is often extremely difficult. Diseases of the circulatory system can often be masked by gastrointestinal symptoms. The purpose of this paper is to show the manifold symptoms which may in one case mask a gastrointestinal disease and in another a circulatory disease. The few case reports demonstrate that close cooperation between the gastroenterologist and the cardiologist is absolutely essential.

Dysentery Bacteroophage

Morton and Engley (*J.A.M.A.*, **127**:585, 1945) review the literature on its prophylaxis and therapeatic uses in man and in experimental infections in animals and give in the following lines the summary of their observations:—

1. The reports on the therapeutic trials of dysentery phage in man are inconclusive. This is in part due to the nature of the experiments, and the problem of the therapeutic action of dysentery phage must be considered as still unsettled.

2. In experimentally induced infections with dysentery bacilli in laboratory animals, dysentery phage has demonstrated an unimistakably therapeutic action.

3. In therapeutic trials it is necessary to perform a bacteriologic diagnosis and demonstrate dysentery bacilli in each case.

4. Susceptibility of the patients' organisms to the bacteriophage to be employed should be demonstrated *in vitro* in each case.

5. The criterion for cure should be the disappearance of the dysentery bacilli from the stools. This should be verified by repeated cultures, perhaps employing a technic such as that of Kligler, Oleinik and Czakes, which makes possible the cultivation of dysentery bacilli even in the presence of a specific dysentery phage.

6. It is necessary to know that the dysentery phage reaches the dysentery bacilli in an active form.

7. Obviously suitable controls are necessary. These should be of comparable age and duration of illness and should be free of a natural bacteriophage. Determining the presence of the same pathogenic organism in the controls and its susceptibility to the dysentery phage is not sufficient. Other organisms in the intestinal flora, in both the controls and the treated patients, should also be investigated in case symbiosis with other organisms interferes with therapeutic effect of bacteriophage, as Melnick, Khastovitch and Nikhinson thought it did.

8. Prophylactically, it has been shown that dysentery phage is capable of preventing bacillary dysentery in man and also capable of preventing lethal infections experimentally induced in laboratory animals.

9. It is necessary to know that the dysentery phage will be active against the strains of dysentery bacilli to be encountered.

10. No lytic action *in vitro*, no protective action *in vivo*.

11. A very striking feature of the *in vivo* action of dysentery phage has been the small amount of dysentery phage required for the protection of experimental animals. A ratio of 1 phage particle to 8 virulent dysentery bacilli has been shown to afford protection in animal experiments.

12. Bacteriophage is unique among antibacterial substances in that, as it is used to destroy bacteria in the animal body, more of the active agent is produced.

Use of Insulin and Abuse of Glucose in the Treatment of Diabetic Coma

Root (*J.A.M.A.*, **127**:557, 1945) gives in the following lines the summary of his observations:—

In a series of 478 cases of coma observed from May 1923 to August 1940 the mortality was 12 per cent. When the insulin given in the first three hours of treatment was increased from 83 units in 1923-1927 to an average of 216 units among 123 consecutive cases treated between August 1940 and May 1, 1944 the mortality was only 1·6 per cent.

2. Diabetic coma is an emergency due to acute insulin defiiciency requiring administration of adequate, often large doses of insulin in the first three hours.

3. Estimation of the insulin requirement is difficult because (*a*) insulin resistance increases hourly with acidosis and (*b*) the law of diminishing returns applies to insulin.

4. Treatment should be carried out in a hospital.

5. Important aids in treatment are (*a*) use of isotonic solution of sodium chloride intravenously or subcutaneously administered, 4,000 c.c. or when necessary to overcome shock and impending anuria, up to 10 per cent or even 15 per cent of body weight, and (*b*) gastric lavage.

6. The harmful effect of glucose administration may be concealed in early diabetic coma by the insulin simultaneously administered; the moderate case of coma may be converted into a severe one requiring excessive insulin dosage. In advanced coma glucose administration either by mouth or by needle may cause anuria and death.

Toxic Reactions to Thiouracil

Gargil and Lesses (*J.A.M.A.*, **127**:891, 1945) write that thiouracil was administered to 43 patients with toxic gaiter and to 1 patient with hypertensive and coronary heart disease without thyrotoxicosis. Eight of these patients developed toxic goiter and to 1 patient with hypertensive and coronary heart disease without thyrotoxicosis. Eight of these patients developed toxic reactions, as follows: 1 fatal case of agranulocytosis and 1 nonfatal case of granulocytopenia, 2 cases of drug fever and 2 cases of submaxillary salivary gland swelling. Thiouracil is an effective drug for the treatment of thyrotoxicosis. It is also an unpredictable toxic drug which may produce serious and uncontrollable effects, especially on the bone marrow and liver. Its use should be carefully controlled until there are satisfactory methods of preventing or controlling its toxic properties.

Penicillin by Mouth

Gyorgy and others (*J.A.M.A.*, **127**:639, 1945) in a preliminary report observe that penicillin given by mouth in

combination with a suitable buffer salt, such as trisodium citrate, was found to be therapeutically effective in a number of cases of gonorrhœa and other disease. The effective doses were comparable to the doses routinely used in parenteral administration. Combination of penicillin and sodium citrate given by mouth produces greater and more prolonged increase of penicillin blood levels than penicillin ingested without a buffer salt.

Effect of "Nitrite" Drugs on Blood Pressure

Weaver and others (*Am. Heart J.*, **28**:601, 1944) gave glyceryl trinitrate, sodium nitrite, erythrol tetranitrate, mannitol hexanitrate and a placebo to normal and hypertensive subjects and made blood pressure measurements at brief intervals until the effect of the drug was over. Each of the 38 subjects received one or more of the substances and most received all four nitrite drugs. The patients were led to believe that the blood pressure measurements were a part of their routine management. Fifty-one per cent of the subjects who were given the nitrite drugs had a fall of systolic pressure and 23 per cent had a lowering of diastolic pressure. The systolic fall was almost always greater than the diastolic. None had a fall in blood pressure after the administration of a placebo. The amount of the fall in blood pressure in hypertensive patients varied greatly, but the averages were as follows: glyceryl trinitrate 16/4 mm. of mercury, sodium nitrite 21/1 mm., erythrol tetranitrate 14/5 mm. and mannitol hexanitrate 12/4 mm. In normal subjects the average fall in blood pressure was as much as 10 mm. less than corresponding figure for the hypertensive. The period between the administration of the drug and the beginning of the fall in blood pressure was variable. For glyceryl trinitrate this interval was 35 minutes and for manitol hexanitrate 55 minutes after the drug was given. The average duration of blood pressure lowering was as follows: glyceryl trinitrate 20 minutes, sodium nitrite 62 minutes, erythrol tetranitrate and mannitol hexanitrate about the same, 256 and 252 minutes respectively. With the last two drugs there was wide variation in the duration.

Treatment of Chronic Intestinal Indigestion with Vitamin B Complex and Liver Extract

Baumhauer (*Alabania State M.A.J.*, Ref. *Am. J. Digest. Dis.*, **12**:90, 1945) writes that cœliac disease is a form of chronic intestinal indigestion affecting infants and is believed to be due to faulty intestinal absorpition. Children with chronic intestinal indigestion show poor appetite, do not gain weight, have diarrhœa, are susceptible to respiratory infections, show aversion to normal play and exhibit fretfulness, irritability and fatigue, Restless sleep, grinding of teeth and night terrors are common. The child may develop tetany or convulsions.

The patients included in this report received weekly separate injections of vitamin B complex and liver extract. In addition to the parenteral therapy of vitamin B complex other vitamins and liver extract were given by mouth. The diet was liberal, Iron was given in cases of iron anæmia. Failure to respond was found when the child had some infection, either acute or chronic. In the absence of infection, favourable results were obtained. The child became more active, less irritable or fretful, gained weight and showed general increase in well-being.

Inhalation of Carbon Dioxide for Cough

Banyai and Cadden (*Brit. J. Tuber.*, **38**:111, 1944, Ref. *J.A.M.A.*, **127**:678, 1945) have used carbon dioxide by inhalation as an expectorant in pulmonary tuberculosis for the past thirteen years. It changes an excessive yet unproductive cough into a useful cough and thereby often helps to eliminate the dangers inherent in an accumulation and retention of inflammatory products. Carbon dioxide liquefies the mucopurulent exudate in the bronchi and reduces its viscosity; the sputum is loosened up and consequently is expectorated without strain or effect. Adequate evacuation of the bronchi ensures comparatively long periods of rest free from annoying cough. The apparatus used by the authors consists of a tank containing a mixture of 10 per cent carbon dioxide and 90 per cent oxygen. An oxymeter regulates the flow of gas per minute. In some patients it was found expedient to give the inhalation through a glass tube instead of the mask. The open method is recommended for patients who are debilitated or who show some side effects when the closed inhaler is used. The meter is set for 4 to 5 liters per minute for closed inhalations and for 5 to 7 liters per minute for the epen method. The treatments vary in length from five to fifteen minutes, and the inhalations are administered once, twice or three times a day. It is necessary to observe the patient closely during the first treatment. If it is noted that the respirations become too strenuous, the inhalations should be given with brief (one minute) interruptions. In the beginning the treatments are given daily; subsequently the frequency of inhalations can be reduced. Almost all patients tolerate carbon dioxide inhalations well, provided the amount of the inhaled gas and the timing of inhalations are individually adapted to the patients's requirements. In some patients they noted transient minor side effects, such as hot sensations, palpitation, weakness, frontal headache and slight dizziness. None of these symptoms interfered with the treatment when proper adjustments were made in the method of administration. The liquefying effect of carbon dioxide on mucopus in the bronchial tract is greater than that of the commonly used expectorants. Carbon dioxide by inhalation occupies a unique place among expectorants in that, besides its liquefying action, it is capable of stimulating the respiratory center. Stimulation of the respiratory center causes increased respiratory expansions of the thorax, a consequent stretching and dilation of the bronchi and an increase in the bronchial peristalsis. These factors contribute substantially to the effective mechanical elimination of inflammatory products from the respiratory tract.

Sulphonamides in Urine—A Simple Test for Detection

Whenever treatment with sulpha drugs is undertaken, it is important to ascertain whether the patient has already taken any, so that adequate but not excessive dosage may be given. A patient may be quite ignortant of its previous administration: he may come in a confused state without a medical report; or the report may indicate that the drug was prescribed but it was not actually taken. In such circumstances, we need to test the blood or urine to obtain definite evidence whether the drug had been taken previously or not, as it is never present in the body unless previously taken.

There are several tests for the purpose; the simplest of these is the lignin test (Hallay, 1942). Lignin, a constituent of wood is present in wood-pulp papers such as newspaper, toilet paper or paper towels, but not in "purified' papers such as filter paper. For the test a drop of urine is placed on a piece of newspaper and one drop of 5 per cent hydrochloric acid added. A yellow colour appears immediately which deepens to an orange with higher concentrations. The exact chemical reaction responsible for the change of colour is obscure, but

fortunately other substances which may give a similar reaction do not occur in the urine.

Bogan (1943) obtained very satisfactory results with the test after extensive trials. The test was applied as a routine to every sample of urine examined in the Norfold Naval Hospital along with microscopical examination of the centrifuged deposit for sulphonamide crystals.

'Analysis of the results in the first 3,000 specimens of urine tested revealed positive chemical tests for sulphonamides in about one-eighth of the specimens of urine of which about one-fifth showed sulphonamide crystals, usually acetylated sulphathiazole, microscopically. More than half of the specimens received from the pneumonia service gave positive tests, with more than a third of them showing crystals in the urine and the negative tests were mainly from new admissions or patients already convalscent etc. Only a half dozen specimens of the 3,000 tested were reported to have sulpha crystals microscopically without a positive chemical test. Unfortunately, the specimens were not saved for check in any one of these cases, in order that the exact nature of the crystals seen could be identified, but it seems probable that they were case of mistaken identity rather false negative tests'.

The concentration of sulphonamides is indicated according to the intesity of the colour as follows:—

Colour	Read as	Approximate per cent
Faint yellow ..	+	0·01
Deep yellow ..	++	0·05
Orange yellow ..	+++	0·1
Orange	++++	0·5 or more

As a simple qualitiative test which can be carried out by the bedside, it is of great practical value and deserves wide publicity.—*Indian M. Gaz.*

Penicillin in Warfare

A supplement to the July, 1944 issue of the British Journal of Surgery presents a symposium on penicillin in warfare. In a foreword Major Gen. L. T. Poole states that employment of penicillin in the most forward surgical units as a prophylactic against wound spesis emerges as perhaps the greatest application of the lessons learned. Under battle conditions a long interval must sometimes elapse before definite surgical measures can be undertaken. Penicillin can be used to bridge this gap and delay, modify or even prevent the developmet of sepsis. Florey and Jennings point out that the subtsance is the most powerful antibacterial agent which has yet been brought into clinical use. Pure penicillin is likely to remain for a long time a chemical curiosity, but its antibacterial capacity is well established. It will completely inhibit the growth of the most sensitive organisms, such as the gonococcus and staphylococcus, when diluted at least 1:50,000,000. Penicillin was shown experimentally to be bacteriostatic and not bactericidal. Its action was not significantly impaired by serum, blood, pus or tissue autolysates. In general, Gram positive organisms and the Gram negative cocci are sensitive and the Gram negative bacili insensitive, but some species show strain variation. The early work on penicillin showed it to be remarkably nontoxic to the body tissues.

The rapid absorption and elimination of penicillin, whether after injection or from a wound surface, suggest that relatively large doses should be given and frequently repeated. For systemic administration intramuscular or subcutaneous injection is usually used. Excretion of the drug is so rapid that probably little advantage is to be gained by increasing the single dose above 15,000 units, the size originally established as generally effective.

Lieutenant Colonel Jeffrey stresses that the treatment of battle casualties demands the intelligent combination of resuscitation, operative surgery and chemotherapy with its specific action against the common bacterial invaders of war wounds (staphylococci and clostridia in the early stages and streptococci in the later stages). Penicillin is the most effective and least harmful agent yet discovered. The drug has three main spheres in war surgery: (1) to prevent infection of the wound soon after wounding, (2) to control infection in the first two weeks and (3) to combat sepsis in the later stages. It is in the control of infection in the first two weeks, that is, at the forward base hospitals, that greatest value can be expected from penicillin The tissues are fresh, the infection is recent, the organisms are not shut away in fibrous tissue and sequestrums, and have not become intractable and insensitive to chemotherapy. In general, systemic therapy is the method of choice in large traumatised areas that are inaccessible to local powder or solution and accessible only to the drug circulating in the blood stream. This involves most of the severe casualties, such as fractures, gas gangrene, septicæmic states, amputation stumps and multiple severe flesh wounds. Lieutenant Colonel Bentley reports the results in a consecutive series of 200 casualties with flesh wounds treated by early secondary suture with local penicillin. Primary healing was obtained in 190 (95 per cent). These wounds were typical of soft tissues battle injuries and the result show that in the presence of penicillin wound infection is controlled and that a high proportion of success follows early secondary suture. Lieutenant Colonel Brown reports much the same results. He feels that they are so good and the period of morbidity is so lessened that all soft tissue wounds, however small, should be sutured with the aid of penicillin. However, he warns that penicillin has in no way replaced and can never be substitute for thorough primary surgical treatment.

Furlong and Clerk state that penicillin failed to control sepsis fully and did not diminish the incidence of chronic infection in open fractures of the femur. They stress, therefore, that penicillin is not a substitute for surgery and that the greatest care and attention must be given to surgical technic and to fundamental surgical principles. Jeffry treated 33 cases for gas gangrene, with mortality of 36·4 per cent. He believes that penicillin has a definite place alongside surgery and antiserum in the treatment of gas gangrene.

D'Abreu and his associates treated 64 severe chest wounds with penicillin. They have been particularly impressed with the capacity of the pleural cavity to retain instilled sodium penicillin for as long as three days. This means that a reservoir of the best known bacteriostatic agent can be maintained at the site of infection. Conversely, passage from the blood stream into the pleural cavity is slight. The method of intrapleural instillation is thus both more economical and far more effective than that of parenteral therapy. As a prophylactic against infection, penicillin is of great value and has been used in major thoracotomy operations with satisfactory results. The authors recommend that in the forward areas the attempt to prevent infection of hæmothoraces should consist in thorough aspiration combined with penicillin instillations. This would

appear to offer the best hope of preventing the present high rate of hæmothorax infections seen in the theater of war.

The most brilliant results with penicillin were obtained in the treatment of gonorrhœa. Major Robinson of the U. S. Army reports 1,000 cases of sulfonamide resistant gonorrhœa treated with penicillin, of which 94·7 per cent were free from gonorrhœa after one course of treatment with 100,000 units of penicillin given intramuscularly in 10,000 unit does every hour or in 20,000 unit doses every three hours. In this series 5·3 per cent required the second course of penicillin, varying from 100,000 to 150,000 units. Seven per cent had developed complications other than posterior urethritis. Penicillin hastened recovery in this group. There were no serious toxic reactions. Of 100 cases of acute gonorrhœa previously untreated 97 per cent responded successfully to one course of 10,000 units of penicillin and only 3 per cent required an additional 10,000 units. The author concludes that penicillin is the most effective agent for treating all types of gonorrhœa. If the supply was unlimited it would be the therapy of choice.

Wise and Pillusbury of the U.S. Army confirm in general the report of Mahoney and his associates on the rapid spirochæticidal effect of penicillin in men, the prompt regression of early syphilitic lesions and the absence of significant reaction to treatment. Penicillin therapy in syphilis offers possibilities of great importance to military personnel, since prolonged treatment with arsenic and bismuth is impossible to carry out continuously under many conditions in a theater of operations. The immediate effects of penicillin therapy are superior to those observed after intensive arsenotherapy.—*J.A.M.A.*, **127**: 220, 1945.

Anaesthesia in Abdominal Operations

Gordon-Taylor (*Proc. Roy Soc. Med.*, Ref. *Indian J. Surg.*, **7**:60, 1945) in a discussion at the Royal Society of Medicine pointed out that for upper abdominal operations the ideal anæsthetic novocaine administered intra-abdominally in the prevertebral retroperitoneum, and very light chloroform (patient semiconscious, able to answer questions). Gas and oxygen is not advised for any prolonged operations. Spinal anæsthetics are not advocated for gastric operations. If regional novocaine be used, very good relaxation can be obtained, and retractors needs hardly ever be employed. Spinal anæsthetics are useful in lower abdominal operations.

A table showing the operative mortality of gastrectomy uder various anæsthetics is of interest, and may be summarised thus:

	Cases	*Deaths*	*Percentage*
Inhalation ..	414	17	3·9
High Spinal ..	600	48	8·0
Regional & Splanchnic	4,300	162	3·76

It is thus seen that full spinal anæsthetic is definitely contraindicated for gastrectomy. For gunshot wounds of abdomen, regional anæsthesia is advocated, with light inhalation anæsthetic. For acute abdominal conditions, the same combination is usually best. Spinal anæsthetic is useful in emptying the bowel of gas, but must not be used in patients, who are collapsed or shocked, or in poor general condition. It is a good anæsthetic for early and fit cases of obstruction. For appendicitis, inhalation (chloroform) is probably as good as anything, especially if glucose is given preliminarily to stave off the toxic effects of chloroform on the liver.

Norman Lake advocated spinal percaine of 1 in 1,500 or 1 in 1,000 strength, with an intravenous saline containing 1 in 250,000 adenaline dripping at the rate of 50 to 60 drops per minute, and continuing during the operation, and after it until the blood pressure rises to normal. Intravenous pentothal is used for industion, and gas and oxygen for continuation of unconsciousness. For acute obstruction, regional novocaine with a minimal quantity of intravenous pentothal is used.

A. H. L. Baker advocated regional 1 in 1,000 anethaine (amethocaine hydrochloride) introduced as posterior intercostal and splanchnic blocks (1 in 2,000 for the splanchnic block). This acts for 3 hours, a much longer time than novocaine. No general anæsthetic is given.

H. Dodd advocates region novocaine or amethocaine, introduced into the abdobinal wall along the costal margin (as far as the crest of the ileum of the side to be operated), and in a dose of under 200 c.c. altogether. Open ether is given as an adjuvant while exploration is being done, and if any puling on viscera is required.

Penicillin for the Treatment of Chemo-Resistant Gonorrhoea in the Female

Greenblatt and Street (*J.A.M.A.*, **126**;161, 1944) write that one hundred and nine female patients with gonorrhœa were treated with penicillin. All but a few patients received either 60,000 or 150,000 units. Following treatment, 6 to 15 cultures for the gonococcus were taken in most of the cases, daily for the first few days and then at longer intervals. In 9, positive cultures were obtained 24 hours after treatment, in 3 after 48 hours and 72 hours and in 4 after 96 hours. In 4 patients, positive cultures were obtained on the fourth and ninth days, fifth and seventh days, sixth and ninth days, and the eighth day, respectively; and in 2 others positive smears but negative cultures were obtained on the eighth and tenth days. Only 6 patients, however, were obtained on the eighth and tenth days. Only 6 patients, however, were considered to be therapeutic failures on the basis of a positive smear or culture after the fifth day. Five additional patients, who were tound to have positive cultures from the tenth to the sixtienth days following treatment were classified as reinfections. Urethral discharge, and symptoms of vaginitis, salpingitis and pelvic peritonitis frequently abated within one to two days after treatment.

Pneumoperitoneum in the Puerperium of Tuberculous Patients

Dingle (*J. Obst. & Gynæc. Brit. Emp.*, **51**:499, 1944) reports the results of the induction of pneumoperitoneum in the puerperium in thirty tuberculous patients treated during the last three years. Antenatal supervision was under the control of the tuberculosis officer, and pneumothorax was induced when necessary. The aim of treatment in this period was adquate rest, food and fresh air, and if necessary, patients were admitted to hospital for prolonged periods. The first stage of labour was made as comfortable as possible by the use of drugs, and the second stage was shortened as much as possible by means of episiotomy or the use of forceps. In most cases the infant was small and there was litle delay in delivery. A pneumoperitoneum was induced within one hour of delivery, 3,000 c.cm. of air, or of an air and oxygen mixture being injected slowly just above and to the left of the umbilicus. A week later a refill of 2,000 c.cm. was given, followed by one of 1,000 c.cm. at the end of another week. Occasionally more frequent refills were required. The aim was to maintain a pressure of

8-10 cm. of water for a month. During this period the mother was kept in bed and breast feeding was seldom allowed. All but two of the infants were discharged from hospital alive and well and have remained well. Only two of the mothers died: one suffered from bilateral active tuberculosis with positive sputum and her condition was considered hopeless from the beginning; the other proved uncooperative and died at home four months after delivery. Apart from these two patients, and one other who was in the last stage of the disease none of the remainder showed any signs of retrogression as a result of pregnancy and labour. As a result of these observations the induction of pneumoperitoneum is advocated as a prophylactic measure in the treatment of tuberculosus patients in the puerperium.

The Influence of Placental Site on Foetal Presentation

Torpin (*J. A. M. A.*, **127**:442, 1945) writes that the great majority of placentas are located on the anterior or posterior wall of the uterus. The ratio found in this study was 47 anterior to 53 posterior. The placenta located on the anterior wall had a definite tendency to the production of occiput posterior presenting fœtuses. Mathematically, when the placenta was anterior the chance for occiput posterior presentation of the fetus was double what it was if the placenta was posterior, 33·3 per cent to 14·5 per cent. The placenta located on the posterior wall had an increased tendency to produce occiput anterior presentation in the fetuses. In this incidence, when the placenta was on the posterior wall the chance of the presentation being occiput anterior was nearly twice what it was when the placenta was anterior, 59 per cent to 33·6 per cent. The incidence of occiput transverse presentation of the fœtus in the first stage of labour was 26·5 per cent if the placenta was located on the posterior wall and 33 per cent if it was located on the anterior wall.

Penicillin in Pediatrics

Herrell and Kennedy (*J. Pediat.*, **25**:505, 1944) write that penicilin has been used in the pediatric service of the Mayo Clinic in the treatment of 54 patients with various types of bacterial infection. For the local treatment of most bacterial infections in infants a total daily dose of 20,000 to 40,000 units of either the sodium or the calcium salt appears to be adequate. For large children a total daily dose of 60,000 to 80,000 units is as a rule enough with the possible exception of cases of overwhelming sepsis, in which it may be desirable to use as much as 100,00 to 150,000 units. For the local treatment of wounds involving soft tissues as well as bone, saline solutions containing 250 to 500 Oxford units of penicillin per cubic centimeter are suitable. Penicillin may be administered locally in the form of the dry substance alone or in combination with sulphanilamide. The sulphanilamide penicillin powders usually contain 5,000 units of penicillin per gram of sulphanilamide. Penicillin may also be administered locally as a cream containing 250 units of penicillin per gram. For local therapy the calcium salt of penicillin is preferred to the sodium salt. For systemic administration to infants the intermittent intramuscular method is the best. From 3,000 to 5,000 units should be administered in 1 or 2 c.c. of isotonic solution of sodium chloride every three hours, day and night. In overwhelming sepsis as much as 10,000 units may be given by the intramuscular method every three hours. In larger children penicillin can be administered by the continuous intravenous drip. In certain instances, such as extensive burns, in which suitable sites for intramuscular injection are not available, it may be desirable to resort to the infusion of penicillin by way of the bone marrow. The sternum or clavicle can be used satisfactorily. Forty-five of the 54 cases responded favourably. Penicillin was effective in bacteriæmia, severe cellulitis, acute osteomyelitis, meningitis, pulmonary suppurative disease, certain pyogenic skin infections, otitis media, actinomycosis and a group of miscellaneous infections including septic arthritis and ocular infections. Penicillin is of little or no value in Gram negative bacillary infections, including undulant fever, tularemia, influenza or infections due to the colon-typhoid-dysentery group of organisms or to Friedlander's bacillus. Infections of the urinary tract due to the Gram negative organisms do not respond to penicillin. It is of no value in tuberculosis, acute rheumatic fever, rheumatoid arthritis, ulcerative colitis, malaria or blastomycosis. It is useless in leukæmia as well as in certain skin diseases including lupus erythematosis. The advantage of penicillin over sulphonamides resides not only in its greater antibacterial powers but also in the low incidence of toxic manifestations.

Abdominal Pain in Children due to Allergy

Ratner (*J.A.M.A.*, **127**:696, 1945) gives in the following lines the summary of his observation:—

1.Abdominal pain in children may be allergic in nature. 2 Such pain may at times present difficulty in diagnosis. If no other real cause is ascertained, allergy should be suspected. 3. In evaluation of the allergic phenomenon with respect to abdominal pain, the following pathogenesis must be borne in mind: (*a*) All the native albumin fraction of protein foods is not always readily broken down by the intestinal enzymes and part may pass unchanged into the blood stream and produce allergic reaction. (*b*) Sensitization must previously have been established before contact with the offending protein will result in an allergic reaction. (*c*) Sensitization may be acquired in various ways. (*d*) The surface as well as the deeper structures of the wall of the digestive tract may be affected. (*e*) Any part of the digestive tract, from the mouth to the rectum, may be affected. 4. Allergic abdominal pains may be initiated by (*a*) spasm of the gastro-intestinal smooth muscle, (*b*) wheal formation in the gastrointestinal wall or (*c*) spasm of the small vessels of the gastrointestinal walls or (*d*) a combination of these factors. 5. As a result of the allergic response, signs of appendicitis or intussusception may be simulated in all essentials. 6. Although the allergic reaction is reversible, if the disturbed physiology is too pronounced or prolonged the harmless allergic reaction may actually be converted into a typical acute appendical involvement or intussusception and should promptly be treated surgically. 7. Pure allergy of the gastrointestinal tract, *i.e.*, uncomplicated by a concomitant eczema, urticaria or asthma, as a rule does not present the diagnostically valuable positive protein skin test. 8. The diagnosis must at times rest on careful historical data relative to the ingestion of certain foods. 9. Of further diagnostic value is the prompt relief from pain from the subcutaneous injection of epinephrine, or from atropine given orally. 10. Of further diagnostic value are roentgen findings when a test meal of the offending food is given: (*a*) pylorospasm, (*b*) delayed emptying of the stomach, (*c*) hypertonicity and hyperperistalsis of the intestine. 11. Treatment of the acute episode is best effected through the use of epinephrine given subcutaneously or atropine given orally. 12. Treat-

ment, from the long range point of view, consists in (*a*) discovery of the offending food or foods, (*b*) the elimination of such food or foods or (*c*) the use of incriminating foods in "allergenically denatured" form and (*d*) the building up of a tolerance for the offending foods.

Treatment of Gonococcic Vulvovaginitis

Compton (*J.A.M.A.*, **127**:6, 1945) from a study of 442 children observes that gonococcic vaginitis accounts for 72 per cent of the vaginitis in children, that the disease is transmitted by contact with highly infected vaginal discharge, that the diagnosis is made readily, in almost all cases, by direct smear of the vaginal secretions and that synthetic or natural œstrogens, sulphathiazole or sulphadiazine or a combination of these sulphonamide drugs and œstrogens have been found highly successful in the treatment of this condition. The author believes œstrogens to be the drug of choice because the danger of sensitization of the patient to sulphonamide drug is always present and the latter should be reserved for the more lethal diseases so common in childhood, where their use then becomes imperative and their use in treating vulvovaginitis must be reserved for treating complications (rare) or after œstrogenic treatment proves unsatisfactory (relatively rare).

Prophylactic Value of Sulfathiazole against Neonatal Gonococcic Conjunctivitis

Gleich and others (*Am. J. Dis. Child.*, **67**:472, 1944) points out that in spite of the instillation of silver compounds into the conjunctival sacs of every baby at birth, there is still an appreciable incidence of neonatal gonococcic conjunctivitis. From 1938 to 1942, 222 cases were reported in the city of New York, and 562 cases in the state of New Jersey.

An investigation was carried out on the service for newborn infants at Harlem Hospital in order to test the value of sulfathiazole in the prevention of gonococcic conjunctivitis. Routine instillation of silver nitrate into the conjunctival sacs of newborn infants were supplemented with the oral administration of sulfathiazole. In order to avoid selection of material, babies born in the hospital on odd days were given sulfathiazole prophylactically as well as silver nitrate. Of the 2,687 babies born in the hospital during 13 months, 1,425 were given sulfathiazole, while 1,262 received no drug except silver instillation.

Of the group who received sulfathiazole, only 2 had gonococcic conjunctivitis, whereas there wrere 6 cases in the control group.

The authors believe that their carefully controlled investigation for a period of 13 months showed that effective protection against gonococcic conjunctivitis was afforded by the oral administration of a total of 1·3 Gm. (20 grains) of sulfathiazole given over a 3-day period, starting 12 hours after birth.

Bone-marrow as an Alternate Route for Transfusion in Pediatrics

Preisman (*Am. J. Dis. Child.*, **62**:253,1944) writes that the intramarrow method of infusion is useful when the veins of the extremities have all been damaged by repeated use or cannot be found, as in peripheral circulatory collapse which prevents sufficient filling of the veins. It is indicated when intravenous administration is impossible due to widespread mutilation, burns, œdema, poorly developed or obliterated veins or shock. In the newborn and infancy, the accessible veins are very poorly developed. The superior longtitudinal sinus, the jugular veins, or the scalp veins, may offer too great a risk of extreme dexterity on the part of the operator; hence, the intramedullary route offers a good substitute.

The authors prefer the following sites for bone-marrow transfusion: the junction of the upper and middle one-third of the tibia as a site of choice, and as a second preference the junction of the middle and the distial one third of the femur. It is not advisable to use the sterum in children under two years of age.

Blood given through the marrow method enters the circulations just as rapidly as the intravenous route. The blood may be given either by syringe or by means of a reservoir and slow drip. The authors have used two types of B.D. needles. The smaller one is a sharp 19 bore needle and the length of the shaft is ½ inch (12·7 millimetres); the larger is a sharp 18 bore needle with a shaft of one inch (25·5 millimetres). Because of the present difficulty of obtaining this type of needle, they have found that a special B.D. spinal tap needle, cut down to the proper length, has been satisfactory.

These physicians feel that intramedullary infusion is contraindicated in generalised infections accompanied by bacteriæmia, septicæmia, and osteomyelitis. If the needle is left too long *in situ*, infection may result.

Routine preparations for blood transfusion using the bone-marrow route, *e.g.*, typing, etc., are the same as for intravenous route.

(*Continued from page 284*)

Jacobson, Cambridge; grant £300; (4) Dr. Miss P. Hammick to work under Prof. Witts to confirm Dr. Jacobson's research; grant £400.

II. Indian Scholarships of Rs. 150/- per month each for one year from 1st July 1945 for scientific investigations having a bearing on the alleviation of human suffering:—(1) Mrs. Alemala Venkataraman, B.A., M.C., Synthesis of sulphanilamide derivatives, Haffkine Institute, Bombay; (2) Mr. S. Dattatreya Rao, B. SC. (Hons.) Investigations on the Synergy between Vitamins A &E and functions of Carotene and Vitamin A in the Animal System, Indian Institute of Science, Bangalore; (3) Mr. L. D. Sanghvi, B.SC. First Class, M.SC., Genetical Study of Blood Groups and Diseases with special reference to Malignant Tumours and Erythroblastosis Fœtalis in Bombay; Tata Memorial Hospital, Bombay; (4) Mr. T. A. Venkitasubramanian, B.SC., Synthesis of Antiparasitic Agents against Tropical Diseases other than Malaria with special reference to Amædines and Organometallic Compounds, Maharajah's College, Ernakulam; (5) Mr. G. Balasubramanyam, M.SC., First Class, Insulin Derivatives and Carbohydrate Metabolism, Indian Institute of Science, Bangalore (6) Mr. T. K. Wadhwani, B. Pharm., Mechanism of the mottling of teeth, Indian Institute of Science, Bangalore; (7) Mr. Rabindra Kumar Basu, M.SC., Synthesis of Vitamin C (l-ascorbic acid). University College of Science and Technology, Calcutta; (8) Mr. Kalipada Mukherjee M.SC., Research on Food Yeast, Biochemical Laboratories, University of Dacca, Dacca—*Science and Culture.*

NOTES & NEWS

TRAINING FOR THE D.P.M.

The second interim report of the Committee on Psychological Medicine of the Royal College of Physicians of London puts forward some fairly precise recommendations which will make the new diploma a much more rigorous and satisfactory achievement than the existing one. The course, it is recommended, should occupy five years instead of the present single year, and the subject-matter is to be comprehensive and thorough, including such ancillary medical and social sciences as are relevant to the proper understanding and treatment of psychiatric disorders. The first three years are to be spent in hospitals, clinics, and laboratories. A house-physicianship and also a post in a neurological department are considered essential. Child psychiatry, psychology, and industrial psychology are to be included. A notable arrangement proposed is that after the three years taken to pass the examination the diploma shall not be awarded until two further years of clinical experience have been spent in some special psychiatric field. The committee wishes to abolish the separation between the institutional psychiatrist and the psychiatrist engaged in private practice and also to limit the isolation of "Sub-specialists." A central board for examinations and for approving institutions for training purposes is contemplated; and the comprehensive and well-thought-out recommendations include some attention to the difficulty to candidates finding the means to take them through the various stages of the course. It is pointed out that American experience does not suggest that the greater severity of the regulation for the diploma will limit the number of candidates.—*Brit. M. J.*

THE BRITISH MEDICAL ASSOCIATION AND THE GOVERNMENT HEALTH SERVICE

The annual representative meeting of the British Medical Association is described by the British Medical Journal as one of the most momentous in its history. For four days nearly 270 representatives from all parts of the British Isles discussed the government's White Paper for a comprehensive medical service for the whole population. Three hundred and seventy separate motions were debated. These all consisted of objections to various proposals in the White Paper, and in general they were carried. But those which involved rejection of the whole scheme were not carried; it was decided instead to negotiate with the government. The negotiators were to press for the best service which could be established. A comprehensive medical service should be available to all who need it, the sense of the resolutions held, but it is unnecessary for the state to provide for those who are willing and able to provide it for themselves. Every man, woman and child should be able to rely on getting all the treatment and cure that may be needed. But grave concern was expressed at the proposals to place the administration of the service under the Ministry of Health and local authorities, and a demand was made for a thorough and impartial inquiry into the proposed administrative structure. Any intention of government in the doctor-patient relationship would be resisted, the representatives declared. Local authorities were totally unsuitable for the control of medical matters, it was emphasized. In the event of the establishment of advisory councils, the meeting was in favour of a single local health service council in each administrative area representing all branches of medical and ancillary services.

Dr. H. Guy Dain, chairman of the council of the British Medical Association, summed up as follows: "During these last three days we have expressed ourselves in favour of the development of medical services. We have disapproved of the White Paper as it stands. We have preferred the service to proceed by evolution from the present national health insurance, placing first the development of the hospital system and then the extension of general practitioner services. We emphatically do not wish to be employed by local authorities. There should be no for general practitioners. We will have no clinical control." Dr. Dain asked for final approval of these conditions, and it was unanimously given.—*Brit. M. J.*

THE BRITISH GOVERNMENT WHITE PAPER ON A NATIONAL HEALTH SERVICE

The following is the extract of a lecture on the subject by Major R. S. Saxton, R.A.M.C. before the Calcutta Branch of the I.M.A. on 5-7-45:

The speaker first outlined briefly the existing oragnisation of medicine in England, as follows:

General Practice—There were two classes of patients:—

(*a*) Panel patients for whom the doctor recieved an annual sum per capita. These were workers below a certain income level who were compulsorily insured, and who could obtain medical advice and medicine free. The insurance did not provide for the dependants of the insured person, nor did it provide consultant advice, hospital treatment, laboratory or x-ray examinations, etc.

(*b*) Private patients, that is the rest of the population, other than paupers. These paid fees to private doctors.

This division of patients into two classes was a dangerous incentive to the establishment of two standards of treatment.

Hospitals—There were in general two types.

(*a*) Voluntary hospitals numbering 900 and having a total of 77,000 beds.

(*b*) Municipal hospitals numbering 140 and having a total of 70,000 beds.

The former were charitable organisation and included the best known teaching hospitals, having a fine tradition of service. However; they were financially unstable, and mostly inefficient units in that only 75 out of 900 had over 200 beds. Moreover being private institutions they could refuse to admit patients. The Municipal hospitals, owned and operated by the local authorities, were catching up with and overtaking the voluntary hospitals in every respect. They were large enough to be efficient all-round units, and were obliged to take in any local residents requiring hospitalisation.

There was little or no co-operation between these two types of hospital.

Preliminaries to the White Paper—During the early years of the war there was much discussion in the B.M.A. divisions on the question of the reorganisation of the Medical Services, and the results of the various suggestions put forward were summarised in a draft interim report circularised by the Medical Planning Commission of the B.M.A. in 1942. In February, 1944, after many consultations with this Medical Planning Commission, the Government published its White Paper. The B.M.A. then arranged for the despatch to all doctors of a long questionnaire asking opinions on points of principle and detail in a reorganised Medical Service.

The White Paper—The White Paper, as stated in its introduction, set out to "ensure that in future every man and woman and child can rely on getting all the advice and treatment and

care which they may need in matters of personal health; that what they get shall be the best medical and other facilities available; that their getting these shall not depend on whether they can pay for them, or on any other factor irrelevant to the real need—the real need being to bring the country is full resources to bear upon reducing ill-health and promoting good health in all its citizens." This was to be achieved by the free provision, for all who wished it, of:—a family doctor, consultants, hospital treatment, special clinics, drugs, midwifery, dental and ophthalmic treatment, drugs, and home nursing.

The position of doctors—The service was to be open to all who wished to enter it. There was to be no prohibition of Private Practice. The Family Doctor would work either in "Separate Practice" (*i.e.* alone), being paid on a capitation fee basis; or in "Grouped Practice" (i.e. a team of several practitioner), usually in Health Centres, being paid by salary. Consulatants would work either full or part time at various hospitals, for salaries.

The health centre—This was envisaged as an institution to provide first-class premises and equipment for medical consultation and treatment, and minor surgery. It would have a laboratory and possibly an x-ray dept. and dispensary. Its staff would include nursing and secretarial personnel.

The hospitals—These would have their work co-ordinated in one scheme. Voluntary hospitals would not be forced into the scheme. If they came in, they would be subsidised, and they would have to agree to certain minimum conditions for their employees, and submit to inspection by an inspectorate.

Clinics—A variety of special clinics: such as those for Maternity and Child Welfare, T.B., Cancer, V.D., etc. would be organised in conjunction with hospitals or health centres, whichever was most suitable in the locality concerned.

Administration—Elected bodies, i.e. Parliament and the Local Authorities, would control the scheme. The Minister of Health would be responsible to Parliament for the scheme as a whole, while the larger medical units, *i.e.* the hospitals and dependant clincs etc., would be the responsibility of joint committees of the Local Authorities, and the smaller units of the service, *i.e.* health centres and dependant clinics etc, would be the responsibility of the individual Local Authorities.

There would also be Health Services Councils, composed mainly of doctors, to advise the Minister and the Joint Local Authorities on the planning and working of the Service. And finally there would be a Central Medical Board with Local Committees to act as the employing agency for doctors in the Service.

Official B.M.A. Reaction to the Scheme—The B.M.A. objected to the democratic control of the Scheme and proposed alternatively Medical Corporation free from popular control. They opposed any large scale development of Health Centres—an essential point in the whole structure of the new Service. They did not wish the scheme to be applicable to the 10 per cent richest members of the population. It should be noted that answers to the questionnaire by the medical profession did not endorse this attitude on the part of officials of the B.M.A. Of doctors replying, 68 per cent stated they would like to work in health centres and 60 per cent thought that 100 per cent of patients should be covered by the Service, while the replies from doctors in the Armed Forces (*i.e.*, most of the younger doctors) recorded 83 per cent and 70 per cent respectively in favour of these two essential points of the Service.

The Capitulation—In 1945, the Minister of Health dropped the White Paper and made alternative proposals to the B.M.A.: namely, a scheme based on a voluntary extension of the panel system to cover all the population. The joint Local Authority scheme for planning local services would be abandoned, and the hospital services would be co-ordinated by a committee representing equally Voluntary hospitals and Local Authorities. Thus not only was the principle of democratic control of the Health Services dropped, but the incentive to two standards of treatment was perpetuated. The tragedy was not only that business interests in the profession had triumphed over altruism, but that progress towards efficient co-ordination of a profession with increasing tendencies to specialisation had been indefinitely postponed.

The Last Word—It was still possible for the British Public by strenuous agitation, both inside and outside parliament, to resurrect the White Paper, but the composition of the new Parliament would proably show whether the people would demand that doctors co-operate to maintain the People's health or would allow them to compete for profit from the People's sickness.

PENICILLIN CONTROL ORDER

The Government of India has promulgated an order for the preparation and manufacture of the anti-infective organic acid, penicillin, produced by *Penicillium notatum*.

'Penicillin' (crude filtrate), is the solution obtained by the filtration of culture containing penicillin grown on or in a liquid or other medium or of extracts from such cultures.

'Penicillin' (dried crude filtrate) is substance obtained by reducing penicillin (crude filtrate) to a dry condition.

Penicillin salt' is the substance separated by the application of chemical and physical processes from the culture medium on or in which a mould producing penicillin has been grown and reduced to a dry condition.

Penicillin cannot be manufactured by any name other than the names mentioned above and should conform to the provisions of this order.

The standard preparation is a quantity of a dry penicillin salt kept at the National Institute for Medical Research, Hampstead, London.

Penicillin (crude filtrate) containing less than 10 units per c.c. and penicillin (dried crude filtrate) containing less than 0·75 units per milligramme shall not be issued. Preparation of penicillin intended for use in making solutions for parenteral injection shall contain less than 150 units of penicillin per milligramme.

Following a conference in London in October last year, attended by representative of Britain, the U.S.A., Canada, Australia and Free France and specialists from South Africa and India,—with the advice of Sir Alexander Flemming, the discoverer of penicillin, an international agreement on a world-wide uniform standard and unit of penicillin was reached by the Health Committee of the League of Nations. Announcing this decision, Sir Henry Dale, President of the Royal Society said that British manufacturers had made an agreement to pool all their information and to give all their results to the Medical Research Council and make the manufacture of penicillin a genuinely national effort.

The Government of India have now decided to appoint a Committee to advise the Government on the steps to be taken to manufacture penicillin in India. This decision was arrived at a meeting of the Governing body of the Council of Scientific and Industrial Research held under the presidentship of Sir Ardeshir Dalal, Member for Planning and Development.

PUNJAB PROVINCIAL MEDICAL CONFERENCE

The Fifteenth Punjab Provincial Medical Conference of the Indian Medical Association is going to be held at Multan on 27th and 28th October, 1945. The firms desirous of having their stalls in the Exhibition are requested to inform the General Secretary Dr. D. C. Bhutani at least two months before the date of the conference.

COLLEGE OF PHYSICIANS AND SURGEONS OF BOMBAY

The following have passed the D.O.M.S. examination held in the month of June last:

Syed Surfrax Khan, Khet Girdharimal Lakhani, Munishawar Nath Langar and Jagannath Menghraj Nakheja.

The following has passed the Final L.D.S., C.P.S. examination held in June last:

Ponus Vicaji Yaraporvala.

FIFTH CONFERENCE OF THE BHAGALPUR DIST. BOARD OFFICERS' ASSOCIATION

The following is the extract of the proceedings of the conference held on 8-4-45:

Discussed the Government Letter No. 5895 L.S.G., dated 15-11-44, forwarded to the Medical Officers for information and guidance through proper channel. The letter contains an extract from the report of the tour of Dr. Kunjru in North Bihar in the Sunday issue of the Search Light, dated 1-10-44. Dr. Kunjru's impression is that only a few people who could afford to pay fees to the doctors, were given saline only at their houses and the rest were left to their fate. To give saline treatment at the house of a patient is a troublesome and hard job for a doctor without assistance who has to engage himself from two to three hours besides the time taken by him to reach the patients house in mofussil area. Mass saline treatment at the houses of the patients with limited assistance available at mofussil dispensaries is not at all practicable.

Hence, the house resolved that the D. B. doctors are willing to give all possible prophylaxis to cope with cholera epidemic within the radius of 5 miles from the dispensary; and so far as curative measures are concerned, it is simply impossible especially in cholera epidemic, when a number of patients in a number of villages require treatment immediately and at the same time. In view of the above letter and D. B. order, D. B. officers are willing to undertake all such treatments provided a cholera ward be attached to the rural dispensaries with sufficient staff and equipments. The opinion of the technical heads such as I.G.C.S. and Civil Surgeons may be obtained in this matter.

PUBLIC HEALTH IN HYDERABAD

With a view to improving the general standard of health in Hyderabad, the largest Indian State, a sum of £113,000 has been provided in the current State Budget, in addition to the normal allocation for public health services, to cover the introduction of a number of new projects for increased medical facilities. Particular care is being taken to make the new schemes available to the rural communities which from the bulk of Hyderabad's population. One of the most valuable of the new activities is a travelling eye hospital. Although most of the big State hospitals in the cities have eye departments, the need for specialized eye hospital has been felt for a long time. An eye hospital in Hyderabad city, however, or another large town, would not have met the needs of a scattered rural population of many millions. The present scheme is an extension of the camps which for some years have been held annually in different parts of the State. Two specialists and a staff of mururses have now been permanently established as a moving institution, travelling all over the State and camping at recognized centres. Full equipment for operations and other treatment is carried. Venereal disease is another problem to which special attention is being devoted. All district hospitals now devoted one day a week to the treatment of venereal disease, and a number of clinics for female patients have been opened, with staffs of both sexes. A central training school for auxiliary medical personnel has been set up at which about 200 male and female nurses will be trained annually. The school also undertakes the training of "Health Visitors", whose work of visiting the people in their homes is of the utmost value. Previously, trainees had to be sent to distant Delhi as no facilities existed in the State.—*Prescriber.*

MANUFACTURE OF FOOD YEAST IN INDIA

In his report on the manufacture of food yeast in India, Mr. Nanak Chand, Special Officer, Food Department, has indicated the possibilities of producing this important food item on a large scale and at a very cheap price. A committee with Sir S. S. Bhatnagar as Chairman, was appointed to examine to what extent the manufacture of food yeast from molasses was a practical proposition, and Mr. Nanak Chand was asked to report on the best methods for the disposal of efficient from the factory and for the utilization of the manufactured product from the nutritional point of view. Their findings were that food yeast can be cheaply and profitably manufactured from surplus molasses and that, with the experience gained, there would be no difficulty in producing more than 3,000 tons of this highly nutritive stuff per annum. It is estimated that it will be available to the consumer at about 6 annas per pound. According to the report, the cheapest and easiest means of disposal of the effluent consists in discharging it into a large river or canal.

Food yeast contains, among others, high grade proteins and vitamins of the B complex, in which Indian diets, particularly of the poorer class, are deficient. Food yeast can be very easily mixed with flour and atta, providing additional vitamins and proteins some of which are lost in wheat milling. An addition of 2 per cent food yeast does not affect the taste of bread, although the colour becomes slightly more brown. It cannot be so mixed with rice at any stage of milling or cooking, but it can be cooked with curry or vegetables, mixed with spices and taken with milk or sweets so that rice-eating population may also share it without difficulty. The report recommends the introduction of food yeast for civil consumption through schools, hospitals, health and maternity centres and other such organizations—*Science and Culture.*

LADY TATA MEMORIAL SCHOLARSHIPS AND GRANTS FOR THE YEAR 1945-46

The Trustees of the Lady Tata Memorial Trust announce on the death anniversary of Lady Tata which falls on the 18th June, the awards of the following scholarships and grants for the year 1945-46.

1. International Awards for research in diseases of the blood with special reference to Leukæmias:—

(1) Dr. P. A. Gorer, London; grant £702; (2) Dr. A. H. T. Hobb-Smith, London; grant £100: (3) Dr. Werner

(Continued at foot of col. 2, page 281)

VII MAHARASHTRA AND KARNATAK PROVINCIAL MEDICAL CONFERENCE

Presidential Address delivered by Rao Bahadur R. K. Naidu, L.M. & S. at the VII Maharashtra and Karnatak Provincial Medical Conference held at Sholapur on 15-12-44:

Food Problem and Public Health

Though the war has entered the 6th year, India is still struggling to tackle the various problems arising out of this great war. One of the biggest problems confronting the country to-day is the food supply, which affects the health of the people of our country. It is well-known that the majority of our Indian people have been living on a poor and unbalanced diet. Owing to war, the imports of food-stuffs from abroad have practically ceased. Loss of Burma and famine in Bengal have made the situation worse. These have caused acute shortage of food in the country, undermining to a great extent the health of our people. Thousands have died and yet thousands are dying from starvation, mal-nutrition and disease in the sister provinces of Bengal, Bihar, Orissa and Malabar. Though the situation is not so acute in our province, there is no denying the fact that there is a steady deterioration in the health of the people due to lack of adequate and nutritious food-stuffs. In this connection the following figures from the medical report of the Bombay University with regard to the health of the students in Poona Colleges will be interesting and instructive.

Year		Class—A	Class—B	Class—C
1942	..	45·95%	52·85%	1·20%
1943	..	41·21%	57·37%	1·42%
1944	..	37·90%	60·51%	1·59%

Figures for 1944 represent health-conditions occurring after rationing had been in force for one year, and tell their own tale. It must be noted that the statistics relate to the health of students mostly from the middle and the better classes in the society, and it follows therefore naturally that health-conditions amongst the poor classes must be still worse.

Rationing of Food-Stuffs

Food committees of the Government of India have met and reported. Experts have conferred and advised. And still the country is not fully prepared to meet satisfactorily the food-problem, which affects millions of this vast continent. It is, however, happy to note that the Government of India, though late, has seen the wisdom of centralizing and controlling the food-policy for the whole country. This enabled the central government to distribute food to the deficit areas. It has been stated that the authorities in England were prepared with the food question, long before the war commenced, and hence could introduce rationing of food-stuffs and control of prices as soon as the war was declared. The prices in England did not rise beyond 20 p.c. to 30 p.c., while the health of the people actually improved, due to the excellent management of rationing. Unhappily it was not so in India. Prices have soared as high as 300%. Four years after the commencement of war, food rationing was introduced, after pressure of public opinion. There was, however, no uniform policy either in the provinces or in the cities. The scale of rationing varied in different cities. Poona started with 2½ seers per week per adult, Nasik with 3 seers and Sholapur with 3½. Sholapur labour was given 50 p.c. in addition to the basic ration.

India is a vast country. Diets of the people vary with climate, region and occupation. While rice is the staple food in one part of the country, millets are found to be so in another. Scienctific study of food requirements of the Indian people in all aspects, is yet in an experimental stage. Dr. Aykroyd of Coonoor and Dr. Mhaskar of Bombay have done some research in this connection. The Poona branch of the Indian Medical Association represented to Government that the minimum scale of food-stuffs for an ordinary man to maintain himself in health and keep fit, should be not less than one lb. per day which amounts to 3½ seers per week, provided the quality is good. This has been corroborated by the Gregory Committee and food experts like Dr. Aykroyd and Mhaskar. Government have since increased the scale to 3 seers per week.

Very great care is necessary in the matter of preserving food-grain in good condition after procurement. In the absence of well-built go-downs for storage, grain will surely deteriorate in quality, being exposed to weather conditions. Worm-eaten wheat and millets devoid of any nutritional value are actually at times sold to the public. In this connection the services of medical men would be very helpful for examining food-grain before the stocks are released for sale.

Protective Foods (Milk-Supply)

While the staple food-grains have received due attention, protective foods such as milk, green vegetables, fruit, eggs, meat and fish, which are essential supplements to staple food have been utterly neglected. Milk forms one of the most important articles of diet of the vast majority of our countrymen, who are vegetarians. It is the essential diet of the growing child, expectant and nursing mothers and invalids. Unfortunately, it is not within the reach of the poor and the middle class people, on account of its prohibitive price and acute shortage. This is bound to impair the growth of our younger generation, the custodians of future Swaraj, apart from lowering the resistant power of the people in general, leading to increased tendency to tuberculosis, malaria, anæmia and other diseases.

This is a serious matter. I would therefore urge upon Government to see that every individual in the country is given not less than one lb. of cereals per day of good quality and an adequate supply of protective food, for preservation of health and physical fitness. Labourers should get 50 per cent more supply in addition to basic diet. Milk should be rationed and sold at control price, so as to make it available to the poor, preference being given, in the first instance, to children under 2 years, expectant mothers and invalids. Order of prohibition of slaughter of milch-cattle should be strictly enforced. Government should take all steps, as are necessary, to increase the supply of milk and other protective foods recommended by the "Protective foods conference" held in Poona recently. Government have appointed in some places advisory committees of medical men, on matters dealing with nutrition but none are appointed for inspection of food-grains. It is to be strongly pressed on Government that a committee of medical men, with some power of action and initiative, should be appointed for the inspection of food-grains, regarding its quality.

It is gratifying to note that the Government of Bombay is alert on the question of milk supply and have commenced in the city of Bombay with the help of the Corporation, to distribute milk at half rate to children under 2 years of age, on presentation of a milk card issued by the Government It is not possible to say whether the scheme would continue or would be extended to other cities, as it is in an experimental stage. Other laudable enterprises are being made in Poona and Sholapur by private agencies where milk is distributed free to infants. For the preservation of health of our younger generation, I would strongly commend such schemes for other cities. Local authorities and Government should encourage such private enterprises by awarding to them suitable grants.

Medical Education

The war has shown the acute shortage of doctors for even the bare needs of the country and the military. As an aid to war effort, Government could have opened new colleges, in addition to increasing admissions into the existing schools and colleges so as to provide more qualified doctors. The scheme of converting the B.J. Medical School in Poona, into a college, is before the country for nearly a quarter of a century. It is revolting to see that the scheme is proposed to be brought into effect, as a part of "15 years' post-war planning." All through this indefinite period, the hardship of the students in the mofussil areas, for admission into the 2 colleges of Bombay will continue, as the restrictions placed on admissions are found to be a great hindrance. I therefore strongly urge upon Government to convert this school, as well as other schools in the Presidency, into colleges in the coming year by making provision in the budget.

While there has been an incessant and unanimous demand for the abolition of medical schools and to introduce a uniform minimum standard of medical education for the country, Government have found it fit to institute a State Medical Faculty, to hold examination for a new diploma, styled as

L. M. P., of 3½ years training after placing a total bar on the admission of candidates for the L. C. P. S. course into medical schools under their control. This is the most retrograde step, which they have taken against their own declared policy. It only shows that Government is keen on having its own class of medical men with inferior status, for its needs, which practically amounts to perpetuating the caste system in the medical profession.

On the other hand great injustice is being done to the students of L. C. P. S. class, in refusing them university status, when the entrance-qualification is identical with that of the college and the period of training is only shorter by 6 months. It is a matter of regret that the Council of the College of Physicians and Surgeons have, by their action in raising the period of training of the Licentiates by 6 months, given the Government a handle to institute another inferior diploma of their own.

With a view to encourage Indian systems of medicine, the Congress Ministry passed the Bombay Medical Practitioners Act of 1938. Under the Act, persons possessing the diploma of the Board of Indian Medicine, are considered as duly qualified medical practitioners and are eligible to have their names registered on the provincial register. They enjoy the same status and privileges as those registered under the Bombay Medical Act of 1912. In their curriculum are included subjects, such as chemistry, biology, anatomy, physiology, surgery and midwifery that is, subjects which are taught to students reading for medical qualifications, registrable under the Bombay Medical Act of 1912. From the experience of the working of this Act for the last 7 years, it is high time that the attention of Government and the public is invited to the fact that the introduction of this new hybrid system, has entirely foiled their intention to encourage Ayurved

Thus we have at present 4 classes of registered medical practitioners, including graduates, L. C. P. S., diploma-holders, State-L. M. P.'s and Anglo-Ayurveds. Ladies and gentlemen, this is the reward of our long struggle to end the caste-system in our profession!

In my opinion the system of Indian medicine, will be truly encouraged by founding a chair for the teaching of Ayurved as a special subject in post-graduate studies. It will also be worth-while to reserve beds for such specialists in our hospital for carrying on researches in Ayurved. This would save the profession from the chaos to which it is drifting. The public would gain by securing an efficient medical service and the profession by getting rid of the caste-system, with all its attendant evils. There would be one class of medical men in the country, with a uniform standard of medical education.

Medical Examinations

Medical examinations during the last ten years are claiming the serious attention of the profession. The results of the final M. B. B. S. to say the least, are disastrous, in spite of the fact, that the entrance qualification of the student is higher than ordinary second class in the Inter-Science. Amongst other things it may be that the subjects for the final M.B.B.S., are too many. It would be easier for students, if regrouping of subjects in different examinations is made. Anatomy, Physiology and Pharmacology should form the subjects for the First examination at the end of two years. Hygiene, Jurisprudence and Ophthalmology, should be for the second examination at the end of the 3rd year and Medicine, Surgery, Mid-wifery with Gynæcology and Bacteriology, Pathology, should be for the Final Examination. The results of the higher examinations are still more disastrous. Not one candidate out of twenty two was successful in the last M. S. examination! It may be due to lack of facilities for Post-graduate study under able teachers. It is clear in any case that something is wrong somewhere. Attention of the authorities was drawn to this serious state of affairs of medical examinations, by a resolution passed at the last medical conference held at Poona in 1941. It is to be regretted that no action has been taken. The provinces of Maharashtra and Karnatak can ill aflord to see the slaughter of our young Men and Women in these examinations, which cost them time, labour and money. I appeal to the Vice-Chancellor to investigate thoroughly into the question. He deserves our gratitude for exposing the scandal in the recent Matriculation examination after making an impartial inquiry. Who can say, serious discrepancies may not be found in medical examinations also?

Maharashtra University

The Bombay University has out-grown its limits. It is now an established fact, that education of the Presidency will be best served by the establishment of Regional Universities, for Maharashtra, Karnatak and Gujerat. Maharashtra is long since ripe for a separate University. An influential committee under the chairmanship of the Honorable Mr. M. R. Jayakar, is already set up in Poona, to take all possible measures to facilitate the establishment of the Maharashtra University. If Government is in earnest of the success of their post-war planning, it is their duty to help this move, as this will expedite rapid progress of education which forms the key-note of success of any scheme.

Nurses and Midwives

The already existing acute scarcity of nurses and midwives in the provinces has been made worse by the war situation. India being educationally backward, educated women are very few. Our educated girls have not as yet taken a liking to the Nursing profession as a career. Unless relaxation in rules of admission and training is made, and sufficient scholarships are awarded to all entrants, progress is bound to be slow. At the present stage of our country, the period of training for nurses should be three years and that for the midwives one year and the entrance educational qualifications should be Vernacular Final, with some knowledge of English or 5th A. V. Standard. Training centres in the mofussil areas should be increased and private hospitals should be encouraged to undertake training of nurses and midwives by awarding suitable grants. Proceeds of nursing funds, raised in different cities and Government contributions for nurses' training, should be utilised only for the purpose of training and distributing proportionately, amongst the various training institutions in that area.

Re-organization of Medical Relief

Out of the 330 centres sanctioned by Government for the whole of the Bombay presidency, under the Rural Medical Relief of subsidized medical practitioners, 140 centres were functioning in Maharashtra and Karnatak, according to the official report of 1941, of which 54 were allopathic, 84 Ayurvedic and 2 Unani. The scheme is reported to be promising. I would, however, like to place my views with regard to the re-organization of the medical and health relief. With a view to co-ordinate the activities of Medical and Public Health departments, which are at present functioning separately, these two departments should be amalgamated into one department, to be administered by the Director of Public Health, who should be responsible to the Ministry of Health. There should be a Medical Officer of Health for each district, who would be in sole charge of the medical and health relief.

Medical and Health Relief Scheme

1. Primary Rural Centre (in an important village).

This should be organized on the model of the Sholapur District Local Board Centre, planned by the late Rao Bahadur Dr. V. V. Mulay and found to be functioning satisfactorily. The centre consists of an out-patients' dispensary, and a maternity home of two beds with a qualified Medical Officer and midwife. A trained health assistant for health work will have to be added, to make the centre a complete unit for medical and health relief. In my opinion a stationary relief centre is far more useful than a travelling centre.

2. Taluka Centre (Chief place of the Taluka).

This centre should have a well equipped dispensary with 12 beds including 4 lying-in beds and a child welfare centre attached to it. The staff should include a qualified Medical Officer, a health visitor, a midwife, a sanitary inspector and a combined surgical and laboratory assistant.

3. District Centre (Head quarters of the District).

This will consist of hospital with beds adequate to the needs and importance of the district, the administrative control of which, along with that of the whole district, will be in the hands of the District Medical Officer of Health. It will be a well equipped modern hospital, containing all the special departments, with a training centre for nurses and midwives

and health visitors. The staff should be medical persons with high qualifications, in their special branches. They should be engaged on a contract basis for a fixed period or be paid a decent honorarium.

Government should also encourage private hospitals by giving them grants, with a view to make them useful factors in their scheme of medical relief of the district.

I have given only a skeleton sketch of the scheme. I would, however, suggest that the provincial council should appoint a committee to prepare a detailed and comprehensive scheme for the post-war planning.

Physical Culture of Young Men

It is sad to see that the health of our young men in colleges is deteriorating, inspite of the compulsory physical training, introduced for students of the first two years. There is no doubt that the present economic conditions, high prices and food problem are to a great extent responsible for this condition. It is, however, found that, a number of students are suffering from diseases, which are preventable, if attended to in time, such as those relating to ear, nose, throat, teeth and eye. To my mind we are building up a structure, the foundation of which primarily requires our attention. In order to make the efforts of the University successful, the authorities in charge of the primary and secondary schools must pay attention to the health of the students in their charge. Systematic and regular medical inspection of the students from their early school career will help to a great extent, the removal of the defects commonly found in colleges. I would strongly press the authorities concerned to supply milk free to the undernourished children in schools and to provide spectacles free to poor students suffering from defective eye sight.

Indian Medical Association

It is a matter of great satisfaction to see that this great organization is becoming a powerful force in the country, in safe-guarding the interests of the Medical Profession, without class distinction. The inauguaration of the I. A. M. C. service and the throwing open of its commission-ranks to the Licentiates is the direct result of the agitation carried on by this Association. Representatives of this body are often nominated on advisory committees or are consulted by government in matters affecting the interests of the profession and the public. Provincial and local branches also are gradually gaining recognition. The success achieved in getting quinine, kerosene, sugar and petrol concessions for the profession, in these days of control and restrictions, was chiefly due to the fact that we were organized bodies. However, I deem it necessary to impress upon you, that there is still a large number of medical men and women, who are outside our fold. I therefore strongly appeal to you, to make every effort to establish branches wherever possible and increase the membership, so as to make this body a forceful organization.

Sholapur Branch (I.M.A.)

After great efforts, we have been fortunate enough to meet here in conference to-day, after three years, under most difficult times. This conference will serve not only to exchange our ideas and solve our problems but also to popularize the Association, in establishing new branches and increasing its membership. Allow me, therefore, on behalf of you all, to express our gratitude, to the Chairman and members of the Sholapur branch of the I. M. A., who by their untiring and ceaseless efforts, have made the holding of this conference possible, surmounting every sort of difficulty.

Dr. J. N. Mehta

We are very grateful to Dr. Jivraj N. Mehta for the trouble he has taken in coming down to Sholapur, to inaugurate this conference, in spite of great personal inconvenience and heavy pressure of work, which evinces his love and regard for the Indian Medical Association. I need hardly state that he is one of those few, who have made it their sacred duty to safe-guard the interests of the profession and champion the cause of the I. M. A. fearlessly. His presence here to-day will be a great help to us. I take this opportunity to congratulate him on being a free man again to assume, once more, the reins of the I. M. A. as its President, in the critical times that are ahead, especially with regard to the post-war Medical Planning. His re-election clearly indicates the confidence the profession feels about him.

* * * * *

Resolutions adopted at the Seventh Maharashtra & Karatak Provincial Medical Conference

I. *Medical Schools into College—Conversion of*—This Conference, while deploring the policy of the Government, for including the scheme for conversion of existing Medical Schools into Colleges in the "Fifteen year Post War Planning", is emphatically of opinion that the scheme of conversion should be immediately taken in hand, to meet the pressing needs of the mofussil areas and with this end in view, requests that steps be taken to make adequate provision in the ensuing budget.

II. *Classes of Practitioners—Uniform Standard of Education*—This Conference strongly disapproves of the policy of the Government of Bombay in creating a new type of Medical Practitioner, designated as L. M. P., ignoring the unanimous demand of the profession to have only one class of medical men with a uniform minimum standard of medical education so as to end the class distinction and demands that the diploma be abolished without delay as has been already done in Madras and U. P.

This Conference, while expressing their disapproval of the action of the Board of the College of Physicians and Surgeons in increasing the period of instruction of the L.C.P.S. Course by six months, which was mainly responsible in giving an opportunity to the Government of Bombay in creating the L.M.P. Diploma, demands that the Board takes steps to abolish L.C.P.S. Course from the year 1945.

III. *I.M.S. in Civil Medical Service*—This Conference expresses its great surprise that members of the I.M.S. are still occupying posts on the Civil side of the Medical Service inspite of the dearth of properly qualified medical men and specialists on Active Military Service, and demands that the Civil side of the I.M.S. shall be immediately abolished.

IV. *Encouragement of Drug & Equipment Industry*—This Conference views with satisfaction the present tendency of the Government, due to the conditions created by War, to get Surgical equipment and other Medical requirements, produced in India and urges them to continue to support indigenous industries even after the present emergency ceases, by imposing protective tariffs on foreign imports of drugs and surgical equipments.

This Conference further urges the manufacturing concerns to take full advantage of the present times and institute research centres, so as to keep the manufacture of medical products on the basis of up-to-date efficiency.

V. *Patent Medicines*—This Conference views with grave concern the growing tendency of the profession to prescribe medicines of patent formulæ and requests the medical men especially the consulting class, to put a check to this practice as it is detrimental to the interests of the patients and the general practitioners, besides being unnecessarily costly to those for whom patent medicines are prescribed.

VI. *Hospital stoppages*—This Conference is of opinion that the rules of Hospital stoppages, as laid down by the Government of Bombay for their dispensaries and Hospitals, ought to be observed by Local Bodies and Private Charitable Institutions and requests them to enforce the rules wherever they have been already sanctioned and to frame and enforce rules immediately where they do not exist.

VII. *District Health Officers*—This Conference appreciates the action taken by the Government in appointing District Health Officers, to some of the Districts and requests the Government to extend this scheme to all Districts.

VIII. *Countersignatures*—This Conference regrets that inspite of the representations made by previous Conference, some officers of the Government and Local Bodies still insist on countersignatures by the Civil Surgeons on Medical Certificates issued by Registered Medical Practitioners. Government should therefore give clear instructions to all concerned, to observe the rules laid down in G.R.

IX. *Maharashtra University*—This Conference supports strongly the movement for regional Universities in the different Provinces of the Bombay Presidency and requests the Government to take immediate steps to implement the

report of the Jayakar Committee for the formation of an University for Maharashtra in the immediate future and further requests the Government to take steps to establish similar Universities in other Provinces on linguistic basis.

X. *Nurses*—In view of the most acute shortage of nurses, midwives and Health Visitors in the Provinces of Maharashtra and Karnatak resulting in a set back to the progress of Medical Relief and Intant Welfare work in cities and villages, this Conference requests that Government devote immediate attention to the working of the existing Council of Bombay Nurses, Midwives and Health Visitors, and recommends that immediate steps be taken to give due and adequate representation on the Council to the training centres in the mofussil and also to the Provincial Branch of the Indian Medical Association. It further recommends that Hospitals with 40 beds be recognized as Training Centres for Nurses and the number of marks required for passing the examination be reduced to 33%.

XI. *Post War Planning*—In view of the great importance of the Post War Medical and Health Planning, this Conference feels it its duty to impress on the Government the necessity of consulting the Indian Medical Association, as its experience and opinion will be of great use in the development and successful execution of these schemes.

XII. *Food-stuffs*—This Conference recommends to Government to take the public in confidence in the execution of Food Rationing Scheme including the procurement, storage and distribution of food-grains with a view to make the scheme a success, and further recommends that members of the Indian Medical Association be appointed on Advisory Committees especially to examine the quality of food-stuffs.

This Conference holds that the basic ration for an adult should not be less than 1 lb. of food-grains of good quality per day, with 50 per cent more for manual labour and recommends the Government to accept this as basic ration without making any invidious distinctions as are at present found in certain cities.

This Conference strongly urges on the Government to make an addition to the basic diet of an adequate supply of protective foods.

XIII. *Malaria and Quinine*—This Conference views with concern the recent high incidence of Malaria and strongly protests against the Government's recent action in reducing the quota of Quinine supplied to general Medical Practitioners which was already meagre and requests the Government to supplement the present quota of 3 ozs. per month with an additional supply of Mepacrine Tablets.

This Conference draws the attention of the Government to the scarcity, quality and the high cost of injectable Quinine and requests them to ration injectable Quinine. It is strongly recommended that the Government's present policy of cultivation of Cinchona plants in India should be vigorously implemented.

This Conference recommends to the State Authorities to supply Quinine and Mepacrine Tablets to the Registered Medical Practitioners in the States as is being done in British India.

XIV. *Drugs Scarcity*—This Conference brings to the notice of the Government that in spite of their efforts, drugs are not easily available to the practitioners in adequate quantities and requests the Government to take necessary measures to improve the situation.

XV. *Purchase Licence Fee*—This Conference strongly protests against the levy of Rs. 15/- as purchaser's licence fee and recommends that such fee should be reduced to a token charge of Re. 1/-.

XVI. *Licence for Asavas, & certain Spirituous Drugs*—This Conference strongly protests against the new circular issued in modification of Government letter No. 374-C/39 of 6th Oct., 1944 making it compulsory to the Medical Practitioners to hold a licence for Asavas, Wines and other Spirituous Medicines as it throws aspersions on the Medical Profession on the grounds of misuses.

XVII. *College study for L.C.P.S.*—This Conference strongly recommends to College authorities to give sufficient facilities to the L.C.P.S. Class for admission into the Colleges for carrying on studies for appearing for the M.B.B.S.

XVIII. *Clinical Colleges in Mofussil*—This Conference draws the earnest attention of the Government to the acute scarcity of Medical Practitioners in Maharashtra & Karnatak, particularly in Rural areas and strongly recommends that immediate steps be taken by the Government of Bombay to find ways and means for establishing Clinical Colleges of suitable dimensions in the larger cities of the Provinces, with adequate facilities for Medical work and affiliated to the University and with a plan of first two years' study at a full-fledged College as in Bombay, and subsequent three years Clinical Instructions at the Clinical Colleges in the Mofussil.

XIX. *Leprosy*—This Conference draws the attention of the Government to the fact that the leper problem is getting very acute especially in big industrial cities of this Province due to the extreme overcrowding and recommends the Government to take immediate steps to prevent the spread of this disease by (1) amending the Leper Act, (2) Opening new centres for treatment, (3) Providing all possible facilities to the lepers for undergoing treatment at the centres, (4) Making the treatment compulsory to the lepers, (5) Increasing the accommodation in the Leper Hospitals, (6) and such other means as the Government thinks necessary

XX. *Honorary appointments—Civil Hospitals*—With a view to encourage highly qualified Medical persons to settle down in various cities and to create efficient medical centres in every District place, this Conference strongly recommends the Government to abolish Civil Surgeonships in Post War Planning and to appoint highly qualified Medical Persons in every Branch of medicine in the Civil Hospitals on adequate honoraria.

XXI. *Quacks—prevalence of*—This Conference brings to the notice of the Government that the prevalence of quacks in these days defeats the purpose of the Registered Practitioners' Act of 1938, and requests that the Medical Practice by unregistered Medical Practitioners should be made a cognizable offence.

XXII. *Preference to Medical Men with War Service*—This Conference is of opinion that it is highly essential that Medical Men with War Service should be given on demobilisation, an adequate and satisfactory compensation or be entirely absorbed in the permanent Military Services, as it is feared, that their permanent absorption in Civil Medical Services will not only be detrimental to public interests but will also bar for a long time to come the admission of fresh talent in the services.

XXIII. *Post Graduate Medical Education*—This Conference finds it necessary to express its deep dissatisfaction at the lamentable state that has been allowed to exist in the Post Graduate Education in the Medical Colleges in Bombay and holds the College Authorities and the University responsible for the same. The Conference requests the University to appoint a committee of inquiry on which Provincial Branch of the I.M.A. should be represented.

XXIV. *Medical Examinations*—While reiterating the grave concern expressed by a resolution adopted at the VI Maharashtra and Karnatak Provincial Medical Conference, held at Poona in 1941, regarding the extremely small percentage of successful candidates in the M.B.B.S. and L.C.P.S. Examinations, this Conference feels shocked to find that worst conditions prevail also in the results of the higher examinations in one of which of recent date, none could get through out of 22 candidates.

XXV. *M.B.B.S. Examinations—Curriculum of*—Looking to the congestion of subjects for the final M.B.B.S. Examination which is partly responsible for a large percentage of failures, this conference suggests the following regrouping of subjects for different examinations:—

1st M.B.B.S. at the end of 2 years.	Anatomy, Physiology and Pharmacology.
2nd M.B.B.S. at the end of the 3rd year.	Hygiene & Jurisprudence.
3rd M.B.B.S. at the end of the 4th year.	Ophthalmology, Pathology and Bacteriology.
4th M.B.B.S. at the end of the 5th year.	Medicine, Surgery, Midwifery and Gynaecology.

Note—The 2nd and 3rd M.B.B.S. Examination will be College Examinations and 1st and 4th will be University Examinations.

XXVI. *Protective feeds*—This Conference urges upon the Government to take steps to provide an increased supply

(*Continued on page 272*)

CORRESPONDENCE

The Editor is not responsible for any views expressed by contributors.—EDITOR.

PRICE OF PENICILLIN

Sir,—The price of Penicillin in the U.S.A. since April has dropped as a result of sales competition and increased production. The price for 100,000 Oxford units is now as low as 1·54 dollars wholesale. Price to a physician ranges from 1·80 dollars to 2 dollars for 100,000 units (*J. A. M. A.* **127,** April 7, page 929, 1945). Calculating on the basis of £1=5 dollars approximate=Rs. 13-6-0 approximate, the price becomes Rs. 4|1|- approximate wholesale and Rs. 5|6|- approximate maximum for physicians. American Penicillin in now being sold in Calcutta at Rs. 14|0|- *i.e.*, more than 2½ times that in the U.S.A. Is it profiteering or India is richer than U.S.A.? This racket cannot be stopped unless Penicillin is manufactured in India. The defunct Penicillin Control Board of the Government of India should be revived to control the price. I am etc.

Calcutta,
12-7-45. B. P. NEOGY.

TUBERCULOSIS PROBLEM.

Sir,—From the press note published in the *Chikitsa-Jagat,* Calcutta, March 1945 (Vol. XVI No. 5) it appears that the Tuberculosis Conference for suggesting post-war anti-tuberculosis scheme has recently concluded its sitting at New Delhi.

The special committee has made some suggestions as the establishment of an adequate number of clinics for tuberculosis cases, attempts at better teaching at the medical institutions on the subject of tuberculosis, and the need for more specialists in the disease.

The expert authorities have recommended setting up of about 4800 T.B. hospitals with a view to accomodate at least 5 lakhs of cases. There is need for an even greater number of hospitals and this admittedly shows how horribly the matter has been neglected.

Famine-stricken Bengal, now with shortage of cloth and with bad food needs immediate attention. Generous help to the existing institution is the need. An attempt should also be made to uplift the efficiency of the existing medical institutions. Faulty method of recruitment in the medical department must be eradicated.

In my article on a Reflection on Tuberculosis Problem published in the *Indian Medical Record,* Calcutta, **64**:199, 1944, also reprinted in the *Calcutta Municipal Gazette* dated 13th, 20th and 27th January 1945, I not only emphatically suggested the need of those recommended by the official experts now, but made some more valuable and practical suggestions in this connection.

I assigned food crisis as the chief aetiological factor for the disease. This deserves serious attention of the Government. Due to import of all sorts of cases from far and near, Bengal and particularly the over-crowded and congested city of Calcutta has become an endemic area for all infectious diseases.

It is no wonder that if some of them will per chance survive amid famine and epidemic, they will under perpetual strain have a lowering of resistance and ultimately die untreated of T.B. or other diseases. Improvement of sanitation and hygiene is the need of the hour and requires employment of medical men in the Health and Medical Departments.

A frank discussion of the tuberculosis problem and its ventilation may serve useful purpose. I am etc.

18, Puddapukur Lane,
Calcutta. DURGA RANJAN MUKERJI, M.B.

REGISTERED MEDICAL PRACTITIONER AND DEARNESS ALLOWANCE

Sir,—The Government is pleased to enhance the dearness allowance to all their employees and insisted that the District Boards should follow suit. The registered medical practitioners and midwives who get their subsidies from provincial funds were not cared for at all. Recently the Government increased the subsidies of the Midwives from Rs. 25|- p.m. to Rs. 30|- p.m. and as regards the registered medical practitioners they declared that they find no reason to increase their subsidies. The District Board also washed off its hand on the plea that they had nothing to do with these subsidies.

We claimed dearness allowance as per Government recommendations. The District Board objected to it on the plea that we were not whole-time servants, but part-time servants and as such we were not entitled to claim dearness allowance.

The G.O. lays down the conditions that we have to attend to any and every emergent case at any and every time and as such we cannot claim any time as our own. Whereas a so-called whole time employee works from 11 a.m. to 5 p.m. practically and has nothing whatever to do during the rest of the time. We registered medical practitioners are not lucky like that. It is absolutely unjust to call us part-time workers as long as the clause binding us to treat any case at any time exists. I therefore, request through your esteemed Journal that the Government be pleased to declare us as whole-time servants for purposes of claiming dearness and other war allowances. It is plain that such unjust and unsympathetic attitude of the District Board and the Government does not go far to encourage this Rural Scheme. It is a surprise that the District Board is allowing dearness allowance to compounders and servants working in the rural dispensary under the same conditions as the registered medical practitioners. I request that the Government be pleased to take prompt steps to remove this anomaly and do us the bare justice. I am etc.

West Godavari Dt. *A Suffering Registered*
Undi, P.O. *Medical Practitioner.*

MISUSE OF ALLOPATHIC DRUGS

SIR,—It appears that in Lahore at least the quacks can have their supply of Quinine ampoules more conveniently than the doctors

Ours is a country where almost everybody pretends to be a 'healer' for others as well as himself. Moreover anybody can buy allopathic drugs at pleasure. Anybody who has been to a chemist must have seen youngmen buying Sulphadiazine and Sulphamerazine. How many of these "wash their kidneys out with the bath" and die of anuria no body can say with certainty. This is just one example but any number can be cited.

Cannot something be done to restrict the sale of allopathic medicines to those only who hold a prescription from a qualified doctor. A news from Amritsar has been reported in a recent issue of *I.M.J.* that the Deputy Commissioner has "advised" the chemists to follow the above principle. But mere "advice" will not compel the chemist to spurn the hand that feeds him. Something more drastic is required to ensure that the Allopathic drugs are used and not misused. I am, etc.,

Canal Park, Lahore.
6-3-1945. J. C. CHUGH, M.B.B.S.

REVIEWS

A HANDBOOK OF PSYCHOLOGICAL MEDICINE—by A. K. Deb, M.SC., M.B. (CAL.), D.P.M. (LOND.) Published by U. N. Dhar & Sons., Calcutta. (Price Rs. 5|- only).

Wartime-stresses the battle front and also in civil life have shown the necessity for the knowledge of psychiatry to every medical practitioner. As a matter of fact, every physical disorder has its psychiatric concomitant. Moreover, many mental disorders with physical complaints and conversions go to the general physicians and are treated by them. It has been estimated that at least thirty per cent of medical outpatients seek advice for ailments which are primarily psychoneurotic in origin. Lastly, as prevention is better than cure, every case should be treated as early as possible and this cannot be done unless every physician understands the true origin of the trouble.

It is, therefore, imperative that every physician, whatever branch he may practise, must know at least the principles of psychological medicine. But as so many branches have come in, any doctor or student can devote only a short time for any one branch. So comes the necessity for a small book but without omiting the essential matter. The author has carried out his purpose very satisfactorily.

The chapters on Wartime Mental Disorders, Industrial Psychiatry, Vocational Guidance and Education, Some Physical Methods of Treatment and the appendix dealing with Rorschach Test, Electro-encephalogram etc. have made the book quite up-to-date. A chapter on 'Relation of Mental Disorders to Tropical Diseases' would have been very well appreciated in this country.

On the whole, I can very well recommend the book to every student or general practitioner.

The publishers are congratulated for bringing out such a book in such a well bound nice condition at this paper controlling time at such a low price (Rs. 5|- only).

C. SAHA.

SURGICAL EPITOME—by Mr. D. V. Nadkarni, M.S. (BOM.), F.R.C.S. (ENG.), with foreword by Mr. R. N. Cooper, M.S. (LOND.) F.R.C.S. (ENG.) pp. 2016: In two volumes. Published by N. M. Tripathi Ltd. Princes Street, Bombay, 1944. Price Rs. 24|-.

Vol. I deals with Tissue Surgery, Regional Surgery and Systemic Surgery of the Central Nervous System and the Respiratory System & Vol. II with Systemic Surgery of the Digestive System, the Genito Urinary System, and Endocrines with a chapter on some 'General States'.

The author is to be congratulated on his achievement in compiling two volumes of compressed wealth, dealing in Surgery and Surgical Methods. Although excellent synopses of Surgery do exist, the outstanding feature of the "Surgical Epitome" lies in the extremely practical yet comprehensive manner in which surgical methods including choice of anæsthesia, pre and post operative management etc. have been dealt with. It is a master-piece of surgical synopsis which reflects tremendous patience and not a little personal experience on the part of the author. The book is stimulating and not a 'cram' edition by any means. A special feature is the supplement of "important points" at the end of the chapters. The wisdom of the author is further displayed in the uniformity of standard with which the various chapters have been compiled avoiding unnecessary details or controversy—it would be almost invidious to pick out any particular section for special praise or comment. No doubt, the subsequent edition will include more modern ideas on surgery of open wounds and on the use of the more recent "Sulpha" group of drugs and Penicillin which have undoubtedly established their value. The reviewer suggests that special chapters on Anæsthesia, Transfusion and Irradiation Therapy be included in the next edition.

The points in favour of publishing a treatise of this nature are best explained in the preface and we commend this book whole-heartedly for the purpose of revision and ready reference to examinees, practitioners and teachers in surgery.

AMARNATH MUKERJI.

PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS—by B. N. Ghose, M.B.E., F.R.F.P.S. (GLAS.), F.R.S. (EDIN). Sixteenth edition 1944. Demy 8 vo. Scientific Publishing Co., 9, Taltalla Lane, Calcutta. Price Rs. 12|8|-.

We congratulate both the author and the publisher for bringing out yet another edition of this standard text book. This edition contains all the new additions to the British Pharmacopoeia, and two new chapters, one on "Drugs Acting on the Medulla" and another on "Analeptics" have been added. All new work on old drugs *e.g.*, Emetine and Camphor have been incorporated and all new drugs have been placed in their respective positions *e.g.*, Dilantin Sodium in epilepsy, Mapharsen in syphilis, Tocopherol in myasthenia gravis, Desoxycorticosterone Acetate in Addison's disease and shock and so on. Another good feature is addition of prescriptions in footnote which will be of great help to the students. One might point out, however, that parts of the book can be conveniently pruned and unnecessary repetition avoided. We hope to see this improvement in future editions.

We heartily recommend the book to both students and medical practitioners.

N. G. MOJUMDAR

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P. B. MUKHERJI,
Hony. General Secretary,
Indian Medical Association.